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Ames Forestry Club

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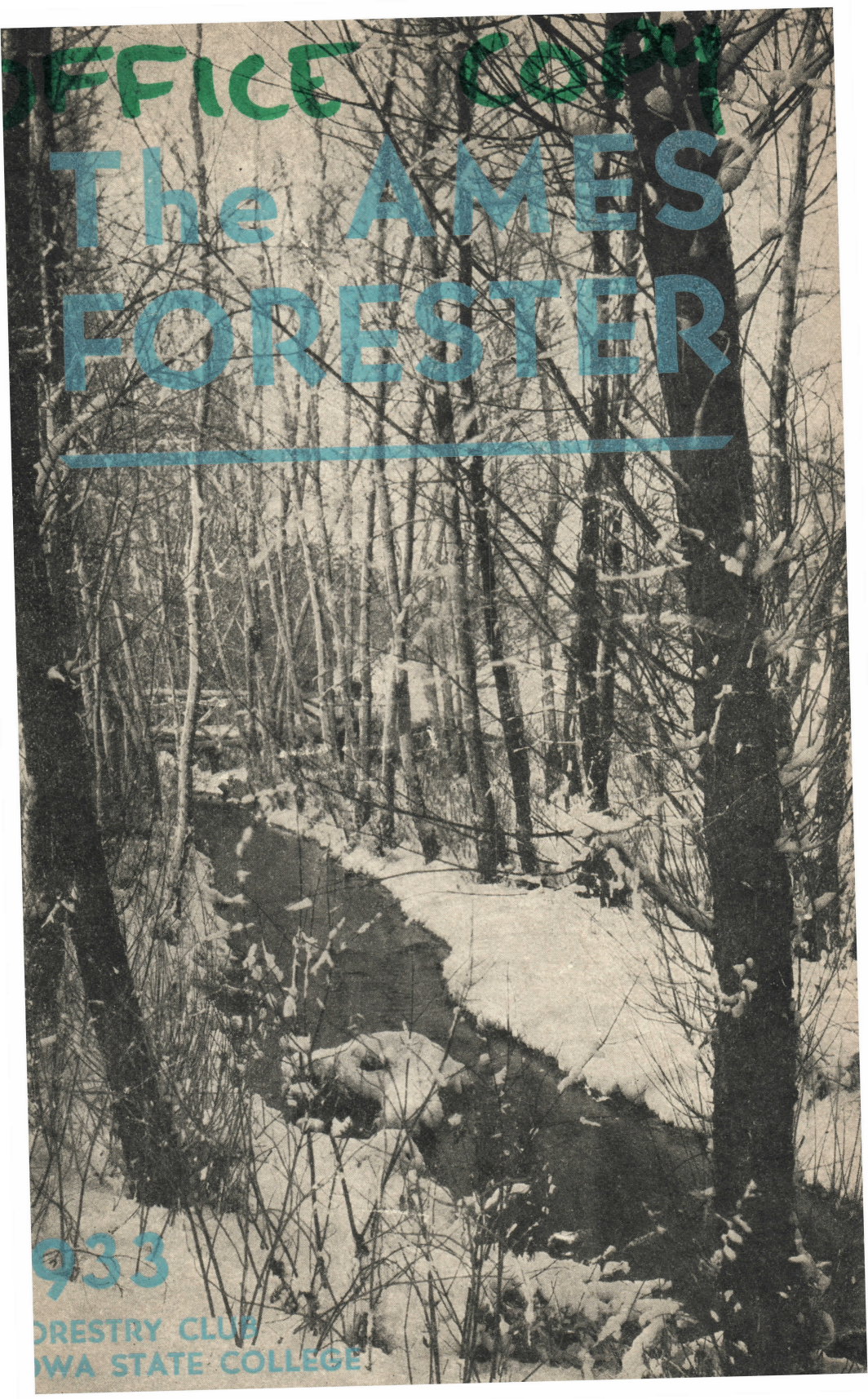

1933

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IOWA STATE COLLEGE

THE AMES FORESTER

VOLUME XXI
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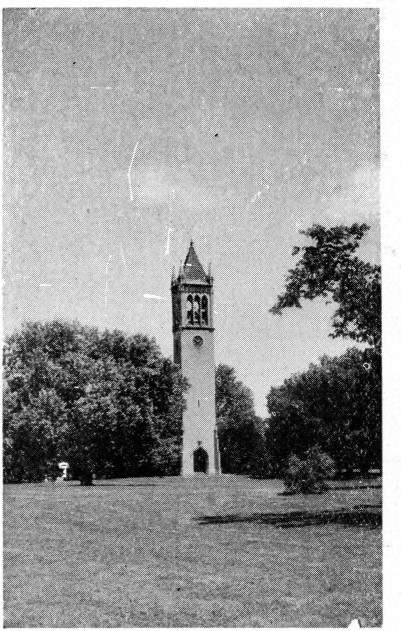

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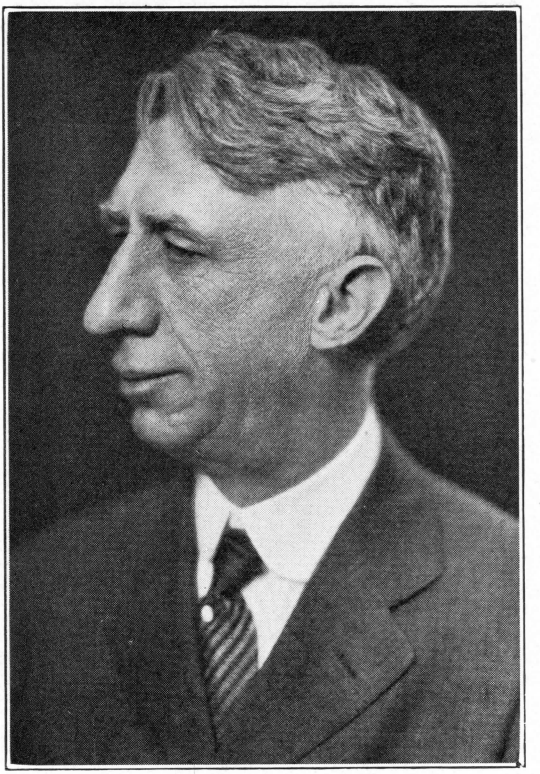
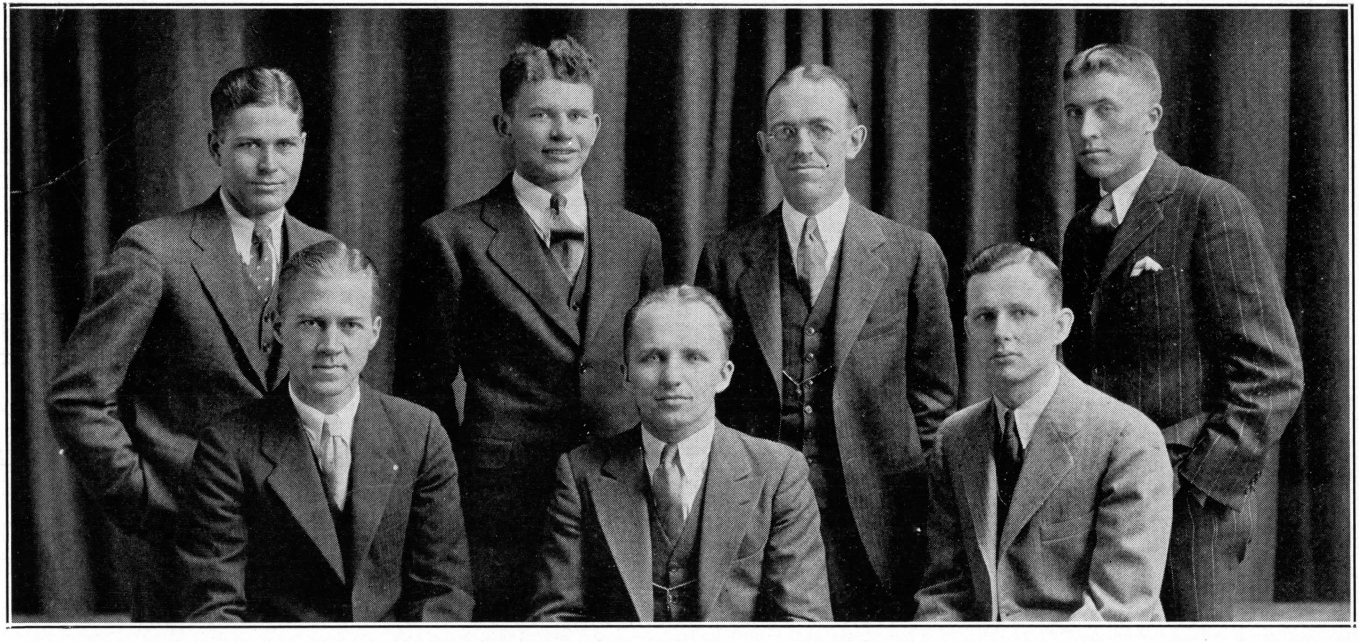


Edward A. Sherman

Dedication

For his untiring efforts to promote the cause and welfare of forestry and to put into effect his high ideals and standards in forestry, we respectfully dedicate this, the twenty-first volume of the Ames Forester to Edward A. Sherman, Associate Chief of the United States Forest Service.



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FOREWORD

The purpose of this annual is to provide a medium of contact between our school, other forestry schools, our alumni and all those interested in the profession of forestry.

To the student, faculty, alumni, advertisers, authors and to those whose names appear on the parton list, we owe the existence of this annual. At this time, the 1933 staff wishes to thank the above mentioned for their worthy contributions.

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The financial success of this publication is due largely to the above people. We thank them for their generous support.

"Where the north winds wail
Down the balsam trail."

Edward A. Sherman

E. A. Sherman may be Associate Forester Sherman to dignitaries in Washington, and merely Ed Sherman to his friends, but he is just another successful alumnus to us. Although Sherman graduated from Iowa State College before most of us were born, he remains, nevertheless, one of us, and it is with fraternal pride that we watch his progress and success in our field of work.

Mr. Sherman was born on a farm in northern Iowa, March 5, 1871. His was the usual experience of working on the farm in the summer, going to a country school in the winter, and finally teaching school to finance his way through Iowa State College. He received his bachelor of science degree from this institution in 1896 with the highest individual standing in his class.

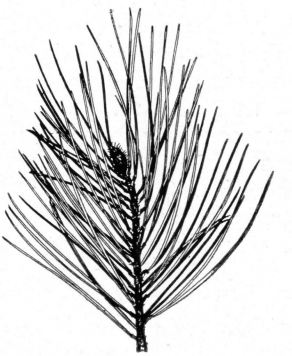
Upon leaving school he tried his hand at newspaper work in Iowa, but was called from that work to the Spanish-American War. After serving six months with the army he returned to newspaper work. The year 1900 found him publishing a newspaper at Hamilton, Montana, and participating in the Daly-Clark senatorial feud. His first administrative work in forestry followed in 1903, hen he was appointed Supervisor of the Bitterroot National Forest in Montana. During the next four years he served in the same capacity on the Hellgate, Lolo and Big Hole National Forests.

In 1907, when the United States Forest Service was reorganized into six districts, he was made Chief Inspector of the Montana-Idaho District, comprising some twenty-five million acres of national forest land. In 1910 he was promoted to the position of District Forester of the Utah-Idaho-Nevada District and for five years had direct charge of the 26 national forests within that region. For the following five-year period he served as Assistant United States Forester in charge of the Branch of Lands, and was located in Washington, D. C. From April, 1920, to the present time, he has been occupying the position of Associate Chief Forester of the United States. Needless to say, he shares much of the responsibility of handling the problems of the Forest Service today.

In addition to his administrative work with the Forest Service, Mr. Sherman was highly responsible for the formulation of the principles and procedure for classifying federal lands into those most suited for agricultural purposes and those best adapted for the production of forests. He has been admitted to practice before the bar of the Supreme Court of the State of Utah, and for many years has represented the United States Forest Service before Congressional Committees dealing with public land legislation and other matters.

Mr. Sherman has been honored by being elected President of the Society of American Foresters, the technical organization in the field of forestry. He is the author of many published and unpublished reports and bulletins, including an unpublished manuscript on Alaska, which was later used as a basis for the recommendations of former President Harding concerning the policy regarding the resources of the Alaskan district. One of his most important contributions is an exhaustive report on the protection forests of the Mississippi River watershed and their influence on flood prevention.

While in college, "Chaucer" (as most of his contemporaries knew him) was prominent in activities and edited the college news publication. From that time to this his career has been one of outstanding success, due principally to his intense interest in conservation and his outstanding ability in the field of forestry. Edward Sherman is not a usual man—his work has not been usual work. He is a farsighted man in an equally farsighted profession. The future of forestry depends on more men like him.



A MES FORESTERS are distinctive. They are
M en prompted by ambition and forsight. Their
E nergy is evident in all their undertakings and
S incerity is the stimulus behind their success.

F oresters at Iowa State are organized and
O btain their objectives through cooperation,
R esourcefulness, and a spirit of good will.
E very man in the department is active and
S traightforward. When something is to be done
T he gang takes hold with an air of achievement and
E nters the work with the determination
R epresentative of AMES FORESTERS.

—*Kowski.*

A Glimpse of the Appalachian Forest Experiment Station

MARGARET STOUGHTON ABELL, '29

Junior Forester, Appalachian Forest Experiment Station, Asheville, N. C.

EDITOR'S NOTE: *Can a woman fill the position of a man in the field of forestry? Her field is no doubt limited in this role, but in research work Margaret Abell has proven beyond all doubt to her associates that she is capable.*

Shortly before her graduation from Iowa State College, she passed the Junior Forester's examination, and was appointed to her present capacity. Her work at the Station has been devoted mainly to Management and Fire Damage studies. She has worked on practically every project of the Station. About one-half of her time has been spent on statistical correlations, summaries, etc.; the rest has been divided between sample plot and quadrat establishment and remeasurement, extensive revision of the Capper report, a little cruising, surveying, some drafting and numerous other small items. The greater part of her time is spent in the office.

ON THE Post Office directory at Asheville, North Carolina, along with the names, Organized Reserves, Prohibition Investigators, Geologic Survey, Pisgah National Forest and others, you will find the words, Appalachian Forest Experiment Station—Room 223.

If, being a forester and filled with the curiosity of Paul Bunyan, you should trail up to Room 223, you will find yourself signing the visitors' register and making a tour of the offices, meeting as many of the technical staff of nine and clerical staff of four as are not in the field. If you are from Iowa State someone will undoubtedly ask if everyone at Ames is named Harold; Harold Moser, Harold Scholtz, and Harold Morey having each spent a field season there.

The five offices, which resemble nothing more than business offices, may not be what you had imagined as an experiment station. Your expectations may be somewhat fulfilled by the library, the two laboratories, two storerooms and the photographic dark room, and probably completely so if you see the Bent Creek Experimental Forest 10 miles from Asheville.

Here you will find yourself, with a member of the Station force or the resident ranger as guide, tramping over a series of units in a mixed oak type—the first a clear cutting; second, silviculture; third, commercial; and fourth, a control. The first duplicates one of the early clearcuttings in which everything,

including brush, was cut to furnish charcoal for the iron furnaces. There are now fair stands of timber in Virginia and North Carolina on lands which were cut in this way. The second represents, from a theoretical standpoint, the ultimate in desirable silviculture. Trees of poor species and form have been removed and a stand of thrifty growing stock left which reminds one of the pictures of German forests. The third area was marked by the national forest in the same way that they mark their timber sales. The control resembles very much in appearance some of the lower oak slopes in Iowa with the trees a little taller and in addition sourweed, yellow poplar, persimmon, sassafras and dogwood.

Then, following the "Hard Times Road," which was built with unemployment relief appropriations, your guide will point out an oak-pine mixture. It is planned to convert this area into pine standards for sawlogs, with hardwood coppice for fuelwood. Your guide will explain that since this is a dry site the pine is more valuable than the hardwoods, but that it is practically impossible to get rid of the sprouting hardwoods. Last year the first cutting was made, taking out 17½ cords per acre and leaving 10 cords per acre.

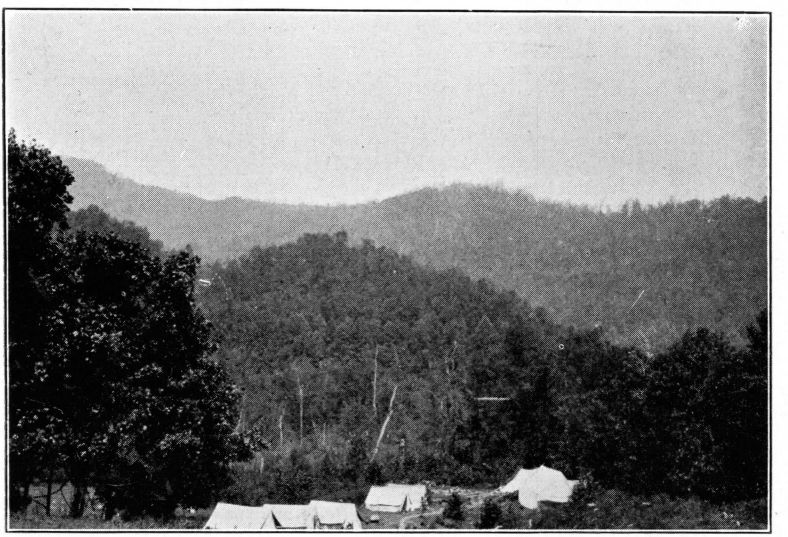
Continuing up the road one of the weather stations is passed. Reports from here will be used with reports from many other localities for the fireweather warning forecasts of the Weather Bureau.

Further up you will find someone making the biennial quadrat-examinations and 5 year tree examinations on the chestnut replacement plots. In this series the chestnut has been cut on some, girdled on others, and poisoned on still others. Some plots have been clear cut and some are controls.

An old house place, such as one happens on often in the woods, may be pointed out to you. This place was probably inhabited from fifty to two hundred years ago. Here one finds ailanthus, apple, plum, daffodils and flowering quince mingling with the plants of the forest.

If it is fall you may arrive at the fire plots in time to see the litter on certain milacres being scraped up, put in huge burlap bags and carried down to the scales, where it is weighed. This is done in addition to the usual tree measurements on this set of burned, raked and control plots. The weight of litter on the plot, which is raked every year, measures the annual leaf fall. The litter weights on the other plots will be used to determine when decomposition starts on the burned plot and when the litter on the burned plot reaches a balance. Litter from the milacre samples on these two plots is carried back and replaced so that the natural conditions will be disturbed as little as possible.

You can see areas in which the growth rate of the unburned forest is compared with that of the burned. One plot in hardwoods, severely burned in April, 1925, showed a continuous reduction in basal area of living trees for four years. By 1931, growth on the surviving trees had begun to overcome losses. A young stand of shortleaf pine burned over at the same time as the hardwoods showed a sharp decrease in basal area in the two years following the fire. During the next four years, the losses reduced the basal area slightly more. A check plot, adjacent, increased 14 percent in basal area during the same six years. In addition to studying the total fire damage as evidenced by growth on such sample areas, an attempt is being made to study the separate effects of fire such as soil deterioration, crown injury, basal bole wounding and root injury.



Camping on the Pisgah

You may hear a deer whistle and dash off through the brush, and if you are a little quiet you may see a buck, for the old boys know that the Bent Creek Forest is part of the Pisgah National Forest Game Reserve.

If you hear a shout behind you, don't be alarmed; it is the biologist after specimens for his collection of animals of the region. Considerable data have been collected on migration and food habits. Several birds hitherto not known to be here have been identified. Mice are being trapped to determine the effect of their food habits on the supply of seed—especially oak. Pop-

ulations of from one to eighty-four per acre have been found in different localities. Predatory animals are being trapped on the Bent Creek Forest to study the effect on game. All the stomachs are preserved for analysis of food habits.

The peculiar looking areas connected with spouting and catchment tanks are installations of the streamflow and runoff project. Their purpose is to determine the comparative effects of different types of vegetation cover on rate of percolation and absorption into the ground. On some plots recording instruments are making a record of rate of runoff simultaneously with intensity of rain.

If you present some larvae at the entomologist's laboratory one of the bug chasers will be delighted to show you their poisoning apparatus. They are searching for a practical method of controlling the southern pine beetle by injection of poisons into the tree. Dyes are mixed with the poison to show the penetration.

You have seen but a sample of the work done by the Station and the cooperating Biological Survey and Bureau of Entomology. It is distributed over Virginia, West Virginia, North and South Carolina, northern Georgia, eastern Tennessee and eastern Kentucky. Even if you were to see all of the field work in this region you would still have seen only about one-third of the work done. Data taken in the field must be organized—often tabulated, sorted and computations made. The conclusions must be carefully reached and the result prepared for publication.

OLD FOREST FIRE LAWS WERE SEVERE

According to Dr. Alfred Lawrence Hall-Quest, the Buddhists of Asia regarded starting fires in the forest an atrocious crime. Forest fires were used as texts for sermons. This was 400 to 500 years before the Christian era.

The Buddhists had various forms of purgatory for eight cardinal sins, and each had 16 subsidiary hells. The sixth of the eighth major division was known as "Tapana," reserved for those who set fires to forests. The punishment for this sin consisted of impaling the malefactor on sticks and burning them.

The Field of Fiber Board for Foresters

GEORGE J. PECARO, '30

Forester and Engineer for the United States Gypsum Company, Greenville, Miss.

EDITOR'S NOTE: *Since graduating from Iowa State College, Mr. Pecaro has been employed with the United States Gypsum Company, where he is working on the manufacture of wallboards. Mr. Pecaro has spent some time in collecting the information contained in this article, as there is nothing published as yet on this subject. He hopes eventually to gather all the information on fiber boards and put it in book form.*

FIBER building boards have recently assumed a position of importance among the materials used in the building industry, and since a great part of the fiber boards on the market are manufactured from wood, the field offers wide possibilities to the technically trained forester.

Most men connected with the manufacture of lumber or its growth look upon fiber board as a lumber substitute and an encroachment on the lumber industry. This is a mistaken idea, for in reality fiber board is a manufactured lumber designed only for specific applications in building construction. The source of raw materials for fiber board, its preparation and conversion, its manufacture and re-manufacture into standard board, is all as important a part of forestry and the utilization of forest products as logging, lumbering and papermaking.

There are in this country some 13 major manufacturers of fiber board. Nearly all of these manufacturers utilize a different species of raw material and each claims something outstanding in his particular method of forming board. The source of raw materials ranges from a low grade, worthless vegetable fiber to a high grade spruce fiber of exceptional value in the manufacture of fine bond papers. Among the vegetable fibers used are bagasse, straw, cornstalks, licorice roots, etc. Of the wood fibers used, there are spruce, fir, cottonwood, southern pines, saw mill waste, distillation waste and waste paper.

For the purpose of this article in discussing the raw materials, we shall deal mainly with the wood fiber boards, but in the manufacture, we shall include all types of boards, as fundamentally the process of manufacture is the same.

A list of the leading manufacturers of fiber boards in this country and the various raw materials used is shown below.

Trade Name	Plant Location	Raw Materials Used
Arborite	Lisbon Falls, Maine	Spruce and other Northern Woods
Celotex	Marrero, Louisiana	Sugar Cane
Firtex	St. Helens, Oregon	Douglas Fir
Maftex	Camden, N. J.	Licorice Root
Homosote	Trenton, N. J.	Waste Paper
In-Cel-Wood	Lisbon Falls, Maine	Spruce and other Northern Woods
Inso-Board	St. Joseph, Mo.	Wheat Straw
Insulite	International Falls, Minn.	Spruce
Johns Manville	Oswego, N. Y.	Paper Screenings and Northern Woods
Maizewood	Dubuque, Iowa	Corn Stalks
Masonite	Laurel, Mississippi	Yellow Pine
Red Top	Greenville, Mississippi	Cottonwood
Nu-Wood	Cloquet, Minnesota	Spruce, Balsam and Northern Woods
Temlok	Pensacola, Florida	Yellow Pine

The Growth of the Raw Material

The growth of the raw materials for the manufacture of fiber board offers exceptional opportunities for putting into practice, on a commercial basis, the various silvicultural systems recommended by such authorities as Hawley, Frothingham and Recknagel.

Commercial investors are reluctant to invest large sums of money for the purchase of large tracts of timber to be placed under technical management due to the long rotation required for the growth of stock logs, and the long period of deferred income. In the growing of timber for fiber board, the rotation is usually short and the system of cutting is simplified.

Mr. Benson H. Paul, Silviculturist of the Forest Products Laboratory at Madison, Wisconsin, in an article printed in the February, 1932, number of the "Paper Industry," developed some interesting data on slash pine, *Pinus heterophylla,* illustrating the attractive short rotation possible for fiber board. His studies showed data from stands of slash pine, 8 to 16 years of age and from 5 in. to 10 in. d.b.h., which would yield 999 pounds of pulp per cord or approximately15 cords per acre. A stand 27 years of age, thinned at 24 years, would yield 1,232 pounds of pulp per cord or approximately 30 cords of pulpwood per acre.

Studies made by the writer on common cottonwood, *Populus deltoides,* in the Delta region of the Mississippi, showed that cottonwood would grow to a diameter of 10 in. to 12 in. b.h., and to a merchantable height of 50 feet in 15 years. On an acre of timber this age and size there would be a stocking of from 60 to 70 merchantable trees which would yield from 15 to 20 cords per acre. Based on this growth and yield of approximately 15 cords to the acre, the crop rotation would be profitably set at 15 years, making it possible to use a modification of the selection system of cutting to remove the crop.

Preparation of the Raw Material

The method of handling wood in the wood yard of fiber board plants is very similar to that used in paper mills. The wood is cut to suitable lengths with a slasher saw and conveyed from the slasher either directly to a pool or to a standard drum barker. If the wood is purchased barked in the woods, it is often conveyed to the pool after the slasher, unless it is necessary to remove grit and the adhesive cambium left when the barking is not thorough.

Exceptions to this method of handling the raw material depends on the method of conversion employed at the particular mill. At the plant of the Newport-Armstrong Company located at Pensacola, Florida, the raw material is received in a converted form ready for pulping from the retorts of a distillation plant. The distillation plant is operated in conjunction with the fiber plant and supplies the wood chips for the latter process from material which would otherwise be an industrial waste.

This distillation plant uses a system of steam distillation and extraction in their process. The wood used is made up mainly of the stumps of cut-over southern yellow pine. This wood is ''hogged'' or reduced to small chips as in the case of reducing the wood for making pulp by the sulphite process. These chips are given a system of steam treatment which removes the oils and crude turpentine. After steaming, the chips are subjected to a vacuum to dry them and are conveyed directly to a chip screen and chip bin over the grinder room of the fiber board plant.

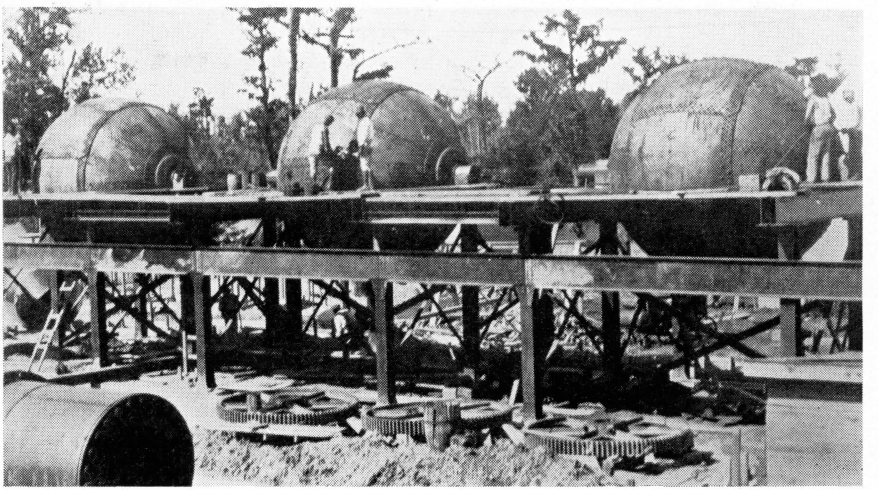
The plant of the Oswego Board Corporation located in Oswego, N. Y., uses both raw pulpwood in the form of billets and also paper mill ''slabs''. The wood follows the usual procedure of slashing ,splitting and barking and is conveyed to the conversion room via the wood pond. The ''slabs'' are pulped in beaters and refined with the pulp from the wood before entering the stock chests.

Still another plant, the Firtex Insulating Board Company at St. Helens, Oregon, utilizes saw mill chips. These are delivered to the board plant docks in barges. The chips are removed from the barges by a system of conveyors which carry the chips directly to the chip bin over the digestor room.

Conversion of the Raw Material

Conversion by means of digestors is the most common method of reducing vegetable and wood raw material to fiber. The most common type of boiler used is the rotary type illustrated in Figure 1. An example of the reduction of wood fiber by rotary digestors is that of the Firtex Corporation. This plant has an installation of six 18-foot Biggs Rotary Boilers in which the chips are processed. The illustration in Figure 1 shows a similar installation of 14-foot digestors for the Massasoit Manufacturing Company, Lake Charles, Louisiana. After the fiber leaves the digestors at the Firtex Corporation, it is further processed into pulp by being run through hammer shredders, and is finally pumped over to the stock chests ready for the board machine.

A typical example of vegetable fiber reduction is that of the Maizewood plant at Dubuque, Iowa. At this plant four rotary digestors are used for fiber conversion. The process through which the cornstalks pass during the conversion process is as follows. The cornstalks are received in bales of approximately 70 pounds each. The bales are received in a shredder house where the baling wire is removed, and the bales broken into



Courtesy: Biggs Boiler Works Co., Akron, Ohio

Figure 1. Rotary digesters used for the reduction and hydration of vegetable and wood fiber.

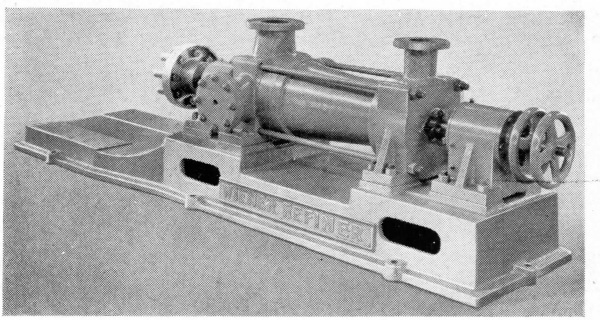
chunks. These chunks are fed into a swing hammer mill shredder where the stalks are reduced into particles 5 inches to ½ inch or finer. This material is carried over a magnetic separator to remove bits of iron and wire, and is blown by a centrifugal fan system to a line of bins. These bins discharge directly into four digestors where the fiber is steam digested at 100 pounds pressure for about two hours. The cook from the digestors is blown into a drain pit, where the liquor is recovered. The pulp is pumped over to a washer and is then reduced to uniform sizes by a cutter machine. After passing through another washer, size is added and the stock is pumped through a Claflin and a Jordan refiner and is discharged into the chests at the board machine.

Fiber reduction by disc pulping machines is common in plants using wood for fiber. At the Arborite plant of the Wood Fiber Board Corportaion a battery of four Bauer disc pulping machines are in operation. The Bauer disc pulping machine consists of two motors mounted on a single frame, facing each other. On the ends of each shaft are attached two discs slotted to receive grinding plates having special corrugated surfaces for reducing chips to pulp. The plates revolve in opposite directions in order to assist in separating the chips into fiber. One disc is so arranged that it can be moved to increase or decrease the gap and so vary the type of pulp produced. A feed hopper is located over the gap to feed the chips between the discs. Steam is blown into the gap to soften the chips and aid in the hydrating process. The resulting product is a pulpy mass of fiber similar in appearance to groundwood pulp, which is discharged directly into the stock pit.

At the plant of the Oswego Board Corporation, the conversion process employs two modified McMillan machines which produce a rough fiber, on somewhat the same principle that excelsior is produced. These machines consist of a movable box mounted over a table beneath which are set four saw mandrels with saws protruding. The logs are dropped into the box, which moves by a crank shaft drive back and forth over the saws and reduces the wood into a rough fiber. The fiber is removed from these machines by a cyclone system to hammer mill, where the material is further reduced to smaller sizes and is then discharged into a chest where it is agitated with water. The resulting pulp is pumped to four Wiener refiners.

The Wiener refiners are manufactured by The Dorr Company, New York, and are the invention of Mr. John A. Wiener, plant superintendent at the Oswego Board Plant, Oswego, N. Y. Although the Wiener refiner resembles a Jordan machine, it is built on entirely new principles. Figure 2 shows a view of the Wiener refiner and illustrates the general construction. Instead

of the stock entering the refiner at the small end and being discharged at the large end, as it would in a Jordan, the process is reversed, which seems to be the more natural operation. By having the stock enter the large end first, the coarser stock first comes in contact wtih the large teeth of the plug, and then as the fibers become separated and smaller they pass on to the smaller finer teeth at the end of the machine and are discharged at the small end. This method of refining the stock secures better hydration and a more finished stock. An added feature to the Wiener refiner over the Jordan machine is the fact that a hydraulic pressure is set up inside the machine by the action of an impeller on the plug, which forces the stock through the machine and out the small end. This hydraulic pressure aids in the hydration of the stock. After the stock passes through the refiners it is pumped to the stock chest ready for the board machine.



Courtesy: The Dorr Company, New York City

Figure 2. The Weiner refiner for refining all kinds of raw stock into a finished pulp.

The United States Gymsum Company plant at Greenville, Mississippi, manufacturing insulating and building board from cottonwood, uses five 3-pocket stone grinders in the conversion process. These are the same type of grinders used in paper mills producing groundwood pulp. The pulp produced is of a high quality, requiring no further refining, and is pumped directly to centrifugal screens and deckered over to the stock tanks. Sizing is added and the stock is pumped over to the machine chest ready for the board machine.

The Masonite Corporation of Laurel, Mississippi, successfully produces insulating and pressed board through a very unusual process in which waste wood chips and cordwood chips are exploded in a fluffy mass and pressed into board under heat. In

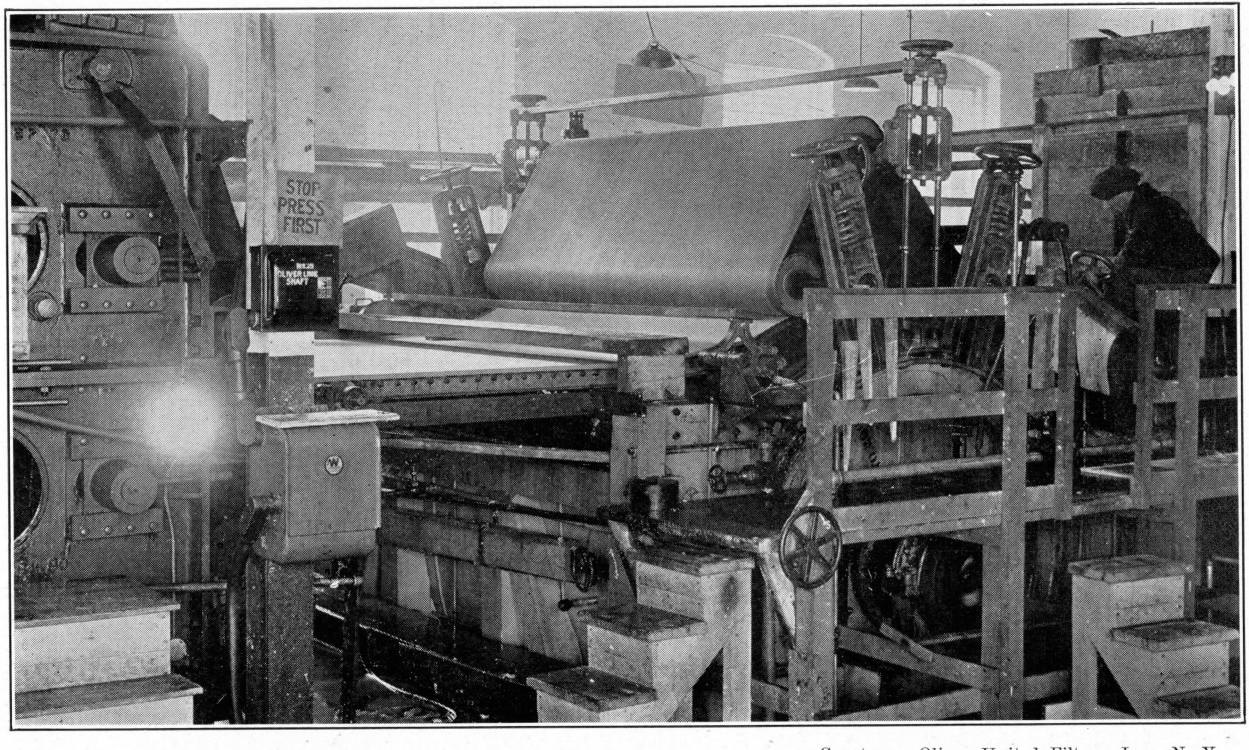
this process the chips are fed into one of a series of long tube-like boilers called "guns", and saturated steam at 800 to 1,000 pounds pressure per square inch is admitted to the gun for a few seconds to soften the natural lignin or binder of the wood and to force the steam into the pores. A quick acting exhaust valve is then opened and the wood is exploded into the exhaust piping at atmospheric pressure. During the exploding operation, full boiler pressure is kept on the gun to clear all the wood through the exhaust port and piping to a cyclone separator, where the steam escapes to the atmosphere, and the fiber drops into a chest where it is mixed with water. Weiner refiners are used in this plant for further refining.

Forming the Board

The process of forming pulp into board in the early days of wall board manufacture was limited to laminating three or more sheets (usually four) of paper board made on an ordinary cylinder paper board machine. The trend today is towards a homogeneous board made on either a screen-like cylinder machine or on a fourdrinier screen machine. Both machines are adaptations of similar paper mill machines.

The leading manufacturer of cylinder board machines is the Oliver United Filters Inc., New York City. This company has pioneered in the manufacture of this type of board machines. Their board forming machine resembles a decker, and consists of a drum covered by a wooden drainage screen, superimposed by a wire screen. This drum revolves in a vat which receives stock from a regulating box called a headbox, and picks up a sheet on the surface of the screen by the action of a vacuum drawn through a hollow shaft supporting the drum. As the sheet is formed it travels in a continuous sheet from the vat and over the drum to a series of light press and felt rolls and off the machine over a "doctor" board into the press section.

Figure 3 shows a view of the Oliver board machine, illustrating the manner in which the board leaves the machine and enters the press section. This particular Oliver has a drum 8 feet in diameter and 9 feet long, although the Oliver Company has constructed Oliver board machines as large as 14 feet in diameter and 13 feet long. The machine illustrated is installed at the plant of the Wood Fiber Board Corporation, Brunswick, Maine. The raw materials used consist of about 90 percent spruce and 10 percent hemlock, the chips being mechanically ground and no cooking process being used. Their board machine will produce 100,000 sq. ft. of board ½ in. thick when dry, and 50,000 sq. ft. of board 1 in. thick when dry, per day. They have also successfully made ¼ in. board at the rate of 150,000 sq. ft. per day.



Courtesy: Oliver United Filters, Inc., N. Y.

Figure 3. Oliver cylinder board machine showing the formed board leaving the machine and entering the press.

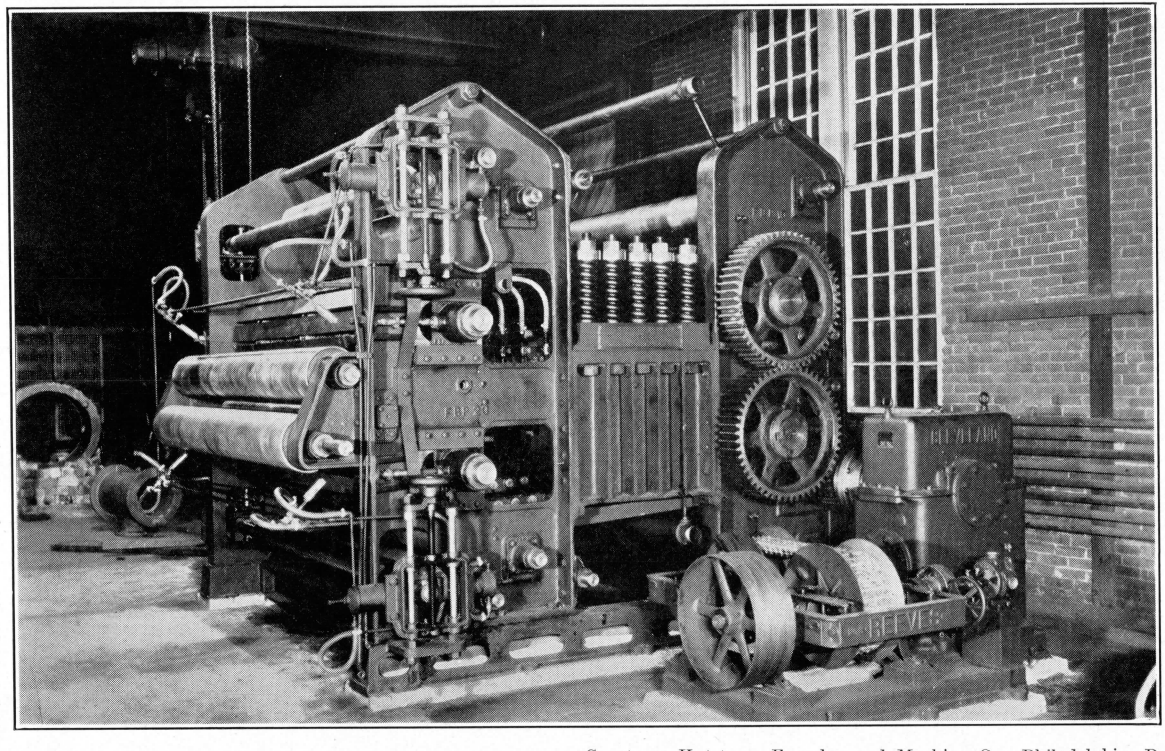
Fourdrinier type board machines have been installed in various plants and have proved successful. Probably the largest type of fourdrinier machine is that manufactured by the Beloit Iron Works, Beloit, Wisconsin, for the Firtex Corporation. This machine consists of a wire 13 feet wide and 100 feet wide, and turns out a board 12 feet wide of 1 inch thickness, semi-laminated.

Downingtown Manufacturing Company, Downingtown, Pa., experimented with a fourdrinier machine consisting of two fourdrinier wires synchronized, one above the other. The stock was introduced at a headbox on one end of the machine and was picked up first by the lower wire upon which the stock flowed from the headbox. The upper wire picked up a light sheet from the top of the stock and met the lower wire at a dam at the end of the stock flow, where the two sheets were formed together in a semi-laminated form.

The majority of board manufacturers use a continual process of forming board, as explained above, and a continuous process of pressing and drying the board. However, there are exceptions. For example, the Oswego Board Plant uses a batch system of forming board by means of a mould. In this method the board must be formed, pressed and placed in the dryer piece by piece, and would be too slow and expensive at most plants.

After the sheet leaves the forming machine on continuous processes, it travels through a press, where the sheet is further compressed and additional water removed. One type of press, The Downingtown Press, consists of a series of rolls gradually increasing in size, through which the sheet passes and is subjected to gradually increasing pressure. A unique type of press is that illustrated in Figure 4, manufactured by the Kutztown Foundry and Machine Co., Kutztown, Pa.; a caterpillar type of press. The press is composed of two heavy steel movable aprons, one on top and the other on the bottom. As these aprons converge the material passing through is gradually pressed, eliminating the water to the extent required for future drying of the board. At a certain point these two aprons run parallel to one another for a limited distance to permanently form the thickness of the board. The pressing zone is supported by two heavy girders and the necessary pressure is regulated by means of heavy springs.

After passing through the press, the sheet is cut to desired lengths by a traveling automatic saw and is conveyed to a continuous dryer. The type of dryer in most common use is the Coe Dryer, which consists of several decks of live rolls on each side of which the wet board is introduced. These rolls convey the sheet through areas of gradually increasing heat until all the water is driven off, after which it passes through a cooling section and emerges from the kiln as dry board.



Courtesy: Kutztown Foundry and Machine Co., Philadelphia, Pa.

Figure 4. The Kutztown press, employing the principle of the caterpillar tractor in pressing wet fiber board to thickness and density required.

The final process through which the fiber board passes in its manufacture is that of re-manufacture, usually termed the finishing process. The dried board is trimmed to desired lengths and widths on a trimmer saw, and follows through various operations of bevelling, tonguing and grooving, sanding and shiplapping according to the use to which it is to be put.

In summing up this article, the writer wishes to stress again the scope of this new field of fiber board for properly trained forestry students. The man who has a fundamental forestry training combined with a general engineering education will find this field of immense possibilities and interest. There is much to be learned in the field of fiber board, many processes to be perfected, new methods to be tried and original thought and hard work to be applied to various problems, but it should be most attractive to trained foresters.

FABLE

The mountain and the squirrel
Had a quarrel,
And the former called the latter 'Little Prig';
Bun replied,
'You are doubtless very big;
But all sorts of things and weather
Must be taken in together,
To make up a year
And a sphere.
And I think it no disgrace
To occupy my place.
If I'm not so large as you,
You are not so small as I,
And not half so spry.
I'll not deny you make
A very pretty squirrel track;
Talents differ; all is well and wisely put;
If I cannot carry forests on my back,
Neither can you crack a nut.'

—Ralph Waldo Emerson.

Whaddya Mean Romance?

By Barney Wiggins, '27

Editor's Note: Through Barney Wiggins is reflected the versatility and adventurous spirit of many a forester.

Shortly after graduating from Iowa State in 1927, Barney set out to do missionary work in Africa, where he remained for four years. His first year was spent at Cape Palmas as acting president of a college for young men. Then followed a year at a boys' school at Cape Mount, where he was in charge of courses in manual arts. The rest of the tour was spent in the far interior at Holy Cross Mission School for boys. During the last period of service, he took charge of a dispensary, treating hundreds of patients daily for all the ills common to the tropics. He claims this to have been by far the most interesting work.

At present, he is taking courses in the divinity school at Yale University, and by the end of the year, will be ready to enter the foreign mission field. However, due to the scarcity of funds available by the sponsors of his work, the mission board of the Episcopal Church, he doubts very much as to whether he'll be going out again soon.

We admire him highly for what he has done, and wish him further luck in his noble undertakings.

Did you ever read the glamourous advertisements of the tropical steamer excursions? The wonder and beauty of the tropics? Lazy days in the Caribbean!

And those romantic tropical names—Santo Domingo, the Bay of Benin, the Virgin Islands!

And that gibbous moon that always manages to find an entry into tropical stories! And those glorious waving palms! And those perfect bathing beaches!

Well, strange as it may seem, there's another side of the story that hasn't been mentioned so seductively. In fact, it's seldom mentioned at all!

Carbolic soap is not romantic. But it is a necessity! You have to use it copiously *and* daily if you want to be free from infections. The air is full of disease germs, the "bush" is alive with infections and the ground is a veritable incubator for poisonous insects and tropical itch.

If you lead an active outdoor existence you are oozing perspiration at every pore and likewise you are in a receptive condition for all the disease germs that are abroad in the air, the soil and in the vegetation.

The slightest scratch, abrasion or insect bite requires careful medical attention and may take days or weeks to heal. Carbolic soap is the standby of everyone as a mild antiseptic with which you use your own pet brand of ointment or unguent.

As cigarettes are advertised in the United States, so is "Zambuk, the cure-all salve," advertised in Africa. It's recommended

for all skin disorders from dandruff to athlete's foot! My own pet remedy was Vick's Vapo-Rub. It burns like blazes but relieves the itch.

That scent of carbolic soap was my constant companion. It was so insistent I could taste it in my tea and even in my cigarettes! I should imagine you could get the effect by carrying a cake of the blasted stuff around in your shirt pocket. You might try it for a week if you have a hankering for the tropics!

Another thing you might try is quinine. Start with five grains each day and after a week increase to ten grains. If you still feel the pull of the palm tree lands after a week of daily ten grain doses keep on increasing the size of your slug until you're taking thirty-five grain daily—then decrease gradually to five.

Perhaps you have taken one or two grains at some time for a bad cold and if so the taste will easily be remembered. Nothing very romantic about quinine—in fact it's the origin of that old simile about "a bitter pill." I'll say it's bitter! Not only *that* but the darn stuff makes your eyes go blinky and your hands trembly and boy, oh boy, how your ears *do* ring! You may be miles and miles from any kind of a bell but you'll hear bells for hours after each dose. It's the best known preventive treatment against malaria fever and unless you have a natural immunity you will doubtless take your five to thirty-five grains as the others do. I've never quite made up my mind whether I'd rather take the quinine or have the fever. One is about as disagreeable as the other and the unfair thing is that you very probably will have the malaria in spite of taking the abominable quinine! One thing is certain—there's no romance in taking quinine *nor* having malaria!

The Anopheles mosquito is the baby that carries malaria, and to avoid being exposed to the pest at night you must sleep under a net. This particular mosquito is nocturnal and small enough to make her way through ordinary screen wire so these nets are of particularly fine mesh. So fine in fact, that along with the mosquito they exclude fresh air. It's like sleeping with your head under the covers on a warm night; it soon becomes uncomfortable. Then it becomes almost unbearable but you have to get accustomed to it unless you want to risk malaria.

Isn't it romantic?

And haven't you often envied those movie guys who appear in tropical scenes wearing solar topees (sun helmets to you) and white suits? Well, an ordinary drawing board might be slightly heavier but it couldn't give any more discomfort if you tried to carry one around from eight in the morning until four in the afternoon!

For dry weather you have a helmet of pith and for the rainy season one of cork and rubber. You must wear one on cloudy days as well as on the bright days because that deadly actinic ray of the sun is effective even though the clouds cover the sky. You will understand the effect of that actinic ray when you hear folks refer to all erratic or eccentric remarks as being the result of "too much sun." It is after all a bit more charitable to excuse and overlook the foibles of your friends with "too much sun" than "Nertz." Pathologically speaking, the first symptom is a headache which develops into a beautiful fever and then you wake up and the doctor is saying, "Drink this!" Perhaps you have been out of the picture for a day or two but if for only a few hours it means you must be more careful than ever. You may even have to carry (and use) one of those cumbersome double umbrellas and personally I'd just as soon be bothered with a Dumpy level or a transit for a constant companion.

In Haine's "Poems of the African Trail" there's a bit of verse entitled "Heat."

"Lost in an ice-water reverie,
Deep in a shower-bath dream,
With the mercury showing a hundred and ten
I come to the edge of a stream.
"Then a curse for my schooling in caution,
That holds me in check at the brink—
But fever and chills and a parcel of pills
Is too much to pay for a drink."

As I recall, there was a drinking fountain on each floor in Ag. Hall. Even out in the nursery there was a water tap and the South Side was all cluttered up with places where you could pause and refresh yourself.

Now take a good long hop step and jump and try and picture three years with never a cool drink to alleviate a thirst that can be generated only in the tropics with the mercury at a hundred and ten!

You boil all your drinking water in Africa. Then you filter it. Then as there's no taste to it and as it is entirely devoid of thirst-quenching qaulities you make tea of it and try not to think of the drinking fountains in Ag. Hall or the Coca Colas at the Campus Drug Store! January (in Liberia) is the hottest, driest month in the year with a constant northeast wind coming straight from the Sahara and fine sand filling the air to such an extent that the sun at midday looks like a big orange—just as it often looks at sunset there at home on a hazy Indian summer evening. Then did I ever wish I was back at Iowa State with a chance to plow through the snow? I could just imagine myself out along Squaw Creek scooping up handsfull of snow to quench

my feverish thirst! It took me over two years to get over being thirsty. Then I just settled down to a state of resignation and thought no more of cooling beverages. Just another case of becoming accustomed to doing without things that are considered essentials there at home, like the Chicago Tribune or the Des Moines Register.

But to turn from things-that-you-want-but-can't-have to things-you-have-but-don't-want and the first up is bananas! How I loathe 'em! They are a staple in the tropics. Raw for breakfast, fried for lunch and baked for dinner, *or* supper. Then for a change we had banana custards! I had a banana plantation as part of a mission agricultural project; had at least three hundred trees or plants at all times and if they were not watched and thinned regularly, I'd find fifteen hundred trying to enter the competition.

As soon as the plant produced it's bunch of bananas, it was hacked down and the best looking sprout was permitted to develop a new plant. The prevailing native practice allowed all of the sprouts to develop with a usual result of hundreds of plants so busy competing for life and developing foliage that bananas were produced on very few of the plants. In my banana farm a plant either produced the goods or was hacked down to make room for another sprout. It was an interesting project even though I soon became fed up on the fruit of the endeavor. After all, you can get too much of nearly any good thing—especially bananas.

Coming up the West African coast on the way home my steamer called at Las Palmas in the Canary Islands, one of the largest banana ports in the world. Ships of fourteen nations (I counted that many different flags), were loading crates of the accursed fruit. The wife of a home-going British colonial officer standing next to me at the rail said, "Did you ever *see* so many bananas before?" And I answered, "Lady, I've *eaten* that many while I've been in Africa!"

Some of the other staples consumed in quantities are rice, sweet potatoes, peanuts and peppers. And as a technical advisor in agriculture it fell to my lot to increase the quantity and quality of their rice, potatoes, peanuts and peppers!

Well, there wasn't much I could do about the rice except try and demonstrate a method of handling the product or harvest that would eliminate some of the gravel. And that was a self-defense measure. After I'd broken a perfectly good molar on a piece of gravel in my helping of rice one evening at supper, I decided there must be a way of caring for the harvest that would prevent gravel from being included in *that* particular portion of the evening meal.

Ordinarily the rice harvest is dried or cured in the village streets. I provided woven mats on which to dry the rice destined for our own consumption and the gravel bothered no more.

Potatoes, peanuts and peppers had been sown rather haphazard and allowed to develop the same way. I arranged sample plots and practiced a sort of selection cutting system with the peanuts and peppers and rather a severe system of thinning in the case of the potato vines.

Then, too, I saved only the best peppers and peanuts for seed. Previously they had consumed the best and obtained their seed from the remainder. I tried the same thing with sugar cane, selecting the largest, longest canes for planting, to the utter amazement (and disgust) of the natives.

Of course, sugar cane is an unimportant feature in their agricultural program as it is used only as a sweet—something to take the place of candy bars and chewing gum. They have not advanced far enough in civilized methods and practices to know that the juice from sugar cane can be made into rum. (The poor heathens!)

Having mentioned the various agricultural products I should, of course give you some idea of how they are assembled to make a meal.

The rice is soaked in water for a few minutes, then the water is poured off and the rice pot is put over the fire. The rice swells and when the water has finally been driven off in steam the main bulk of the meal is ready!

The peanuts after being scorched (supposedly roasted) over the fire are ground into meal. This peanut meal or flour is made into gravy or sauce by adding water. Peppers, potatoes, cold boiled eggs, bacon, tomatoes and meat (if any) are introduced into this sauce and there's your supper!

The first time this particular style of meal was served for me, I thought it was wonderful! (I must have been awfully hungry.) After the same meal every other night for a year I was ready to commit murder every time the cook mentioned rice *or* peanuts!

I had the glorious experience of eating regular food on my vacation in Europe but the steamer which carried me back to the west coast of Africa at the end of my holiday put in at the port of Dakar which is the peanut capital of the world. What a shock! There they were—mountains of peanuts awaiting shipment to all parts of the world! More than enough peanuts to completely bury Ag. Hall with enough left over to fill the Armory!

But then—that's the tropics! After all it might be romantic if one had to spend only a couple of weeks out there but three years of bananas, rice, sweet potatoes and peppers is stretching romance way beyond its elastic limit!

White Pine Blister Rust

THEODORE F. KOUBA, '26

Supervisor, White Pine Blister Rust Control, Wisconsin

EDITOR'S NOTE: *Much credit should be given to Mr. Kouba in his accompanying article for presenting the white pine blister rust disease problem in such a clear, non-technical and interesting manner. The state of Wisconsin cooperates with the United States Department of Agriculture through the Division of Blister Rust Control, and with the Wisconsin Conservation Department through the Division of Forests and Parks in combating this disease. The state also cooperates with counties, lumber companies, nurserymen, and private owners who wish to protect their white pine from blister rust.*

PRIOR to the federal quarantine No. 37, which was a general code governing the importation of plant material into the United States, many millions of small white pines were imported from Europe and planted in this country. It was on these trees that white pine blister rust, a disease of five-leaf pines, was accidentally brought to America. For a time this deadly forest tree disease, white pine blister rust, threatened to wipe out our valuable white pine forests, but simple and effective methods have been developd to bring this rust under control.

Blister rust was first discovered and recognized as such in America in 1905, near Dresher, Pennsylvania. It is now established in the eastern and central states from Maine to Iowa and Minnesota and southward to the North Carolina line. In the West it has been found in Washington, Oregon, Idaho and Montana. It exists in a total of 21 states, all of which are cooperating wtih the United States Department of Agriculture in a nation-wide effort to control the rust and assure the continued production of white pines as a forest crop. As yet, less than 5 percent of the white pines of the United States are actually diseased, but each year where disease control measures are not carried on the disease continues to spread.

Before blister rust was brought into this country Ribes* bushes and white pine trees could safely grow side by side. Today, however, where these two plants are closely associated the white pines are always in danger because Ribes bushes are the alternate host of white pine blister rust.

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*Ribes is the Latin generic name of all species of currant and gooseberry plants and will be used instead of the words currants and gooseberries throughout this article.

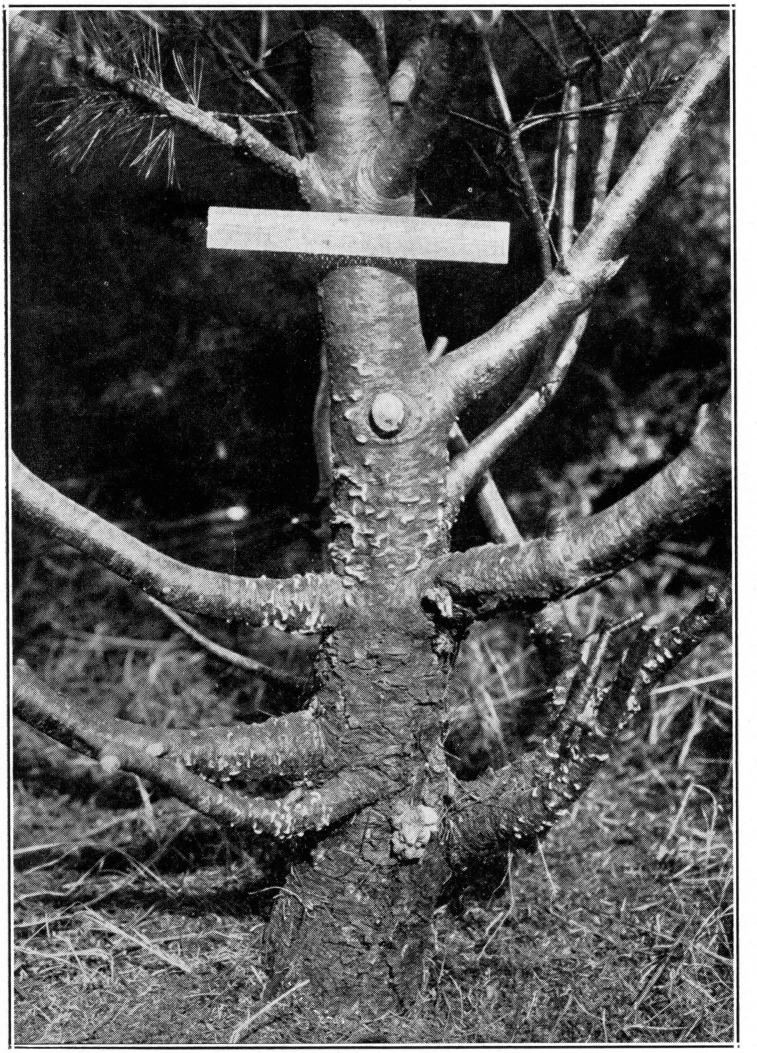


Figure 1. Characteristic stem infection of the white pine blister rust on white pine 5 feet in height. Note the whitish blisters on the stem and branches and the rough cracked bark of the old fruiting surface of the main stem at the base.

This blister rust is caused by the parasitic fungus *Cronartium ribicola* Fischer, which lives in the inner bark of white pine trees and in the leaf tissues of currant and gooseberry bushes. Ordinarily it does not kill the bushes, but it does kill the trees. Scientists agree that blister rust can be controlled by taking advantage of two weak points in the life cycle of the rust fungus. The first weak point is the inability of the blister rust fungus to spread from one white pine directly to another. The only possible way for a tree to become infected is from a nearby Ribes bush infected with the rust. The second weak point in the life cycle of the fungus is the short life of the pine-infecting spores which are produced on Ribes bushes. Although these spores may be blown about by the wind for miles they are so short-lived that they usually die by the time they have traveled only a few hundred feet from the diseased Ribes. Because of these two facts a white pine stand can be protected from serious blister rust damage by merely removing the Ribes within infecting distance of the pines; this distance, for all practical purposes, is 900 feet in the central and eastern states. In the western states the distance is somewhat greater.

There is one exception to the above rule and that is in the case of the European black currant. This species, which is a cultivated Ribes, should not be grown within one mile of white pine trees. The European black currant is so susceptible to blister rust and such an important agent in the distribution and spread of the disease that it has been declared a public nuisance or outlawed in many states possessing native five-leaf pines.

The best time of the year to examine white pines for blister rust is in early spring. The disease is manifest on the limbs or trunk where groups of white blisters burst through the outer bark. These blisters are about the size of a pea and they are filled with orange-yellow spores. Usually there is a characteristic yellowish discoloration of the bark adjoining the infected zone. When the blisters burst open the spores are scattered over the surrounding area by the wind. These spores will grow only when they fall on the leaves of Ribes plants. During the remainder of the year no blisters are visible on the pine, but the rust fungus continues growing in the live bark as long as any remains. The following spring another group of blisters will appear, and this procedure will continue until the tree is eventually killed. During late spring, summer, and autumn, until the leaves fall, infected Ribes leaves show brownish hairlike outgrowths of rust on their under surface. The final spore developed on Ribes is the one which infects white pines.

Five-leaf pines are of economic importance, for they rank among the most valuable coniferous trees of the United States.

The chief commercial pines in this group are *Pinus strobus, Pinus monticola,* and *Pinus lambertiana.* Because of climatic and soil conditions and certain other factors, Ribes bushes are usually found in these white pine forests.

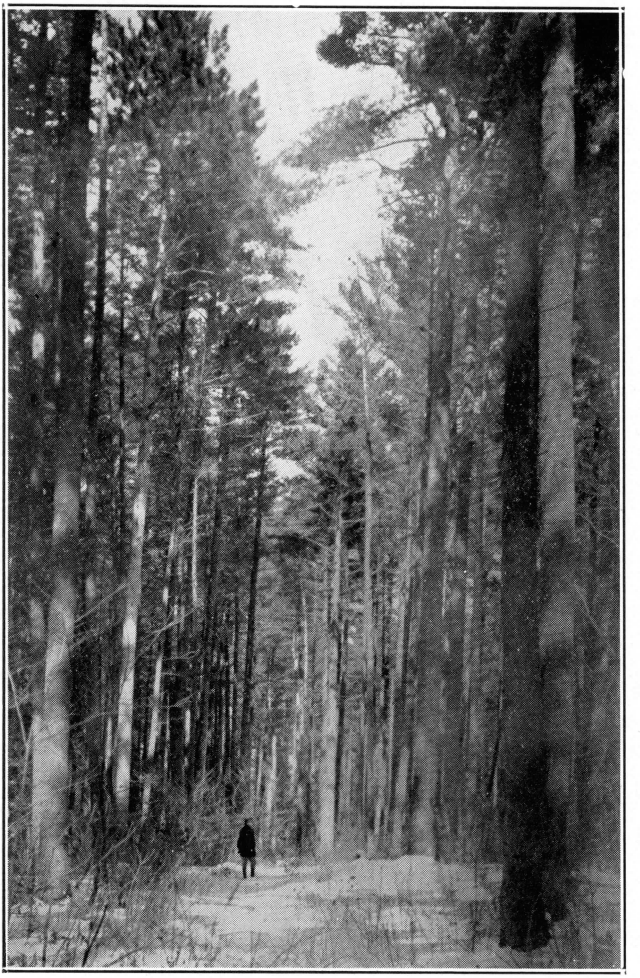


Figure 2. An immature white pine stand, Waupaca County, Wisconsin.

Uprooting all Ribes bushes within infecting distances (900 feet has been found sufficient in Wisconsin) of federal, state, and privately owned white pine stands is considered local control,

and such activity may begin as early in the spring as the foliage appears on the bushes. The Ribes ordinarily can be removed at a very reasonable cost. This work is usually done by a crew of men who systematically examine all of the ground in parallel strips and mark the edge of each strip with suitable markers so that no portion of the ground will be overlooked or needlessly reworked. The foreman works directly back of the crew. He not only checks on the efficiency of the work, but he also helps to keep the men in proper formation.

The bushes are usually uprooted by hand, or, if large and firmly rooted, with a Ribes pick. The uprooted bushes are hung in the crotches of trees or in other places where they will not come in contact with the soil.

Another method of destroying Ribes is by means of chemical sprays. This has been found highly effective and less expensive than pulling the bushes by hand on sites where Ribes are very numerous.

The cost of Ribes eradication varies. During 1932 in Wisconsin these costs ranged from $.03 to $2.91 an acre. This variation was due to differences in the number and size of the bushes, density of undergrowth, roughness of the ground of the area worked, and certain other factors. Of the 19,712 acres covered in the state this year the average was $.33 per acre. The cost in the Northeastern states is somewhat less, due chiefly to fewer Ribes in their pine stands. Ribes eradication cost in the western states run proportionately higher than in either the Northeastern or Lake States.

A re-examination of areas worked to determine the re-growth of Ribes bushes is advisable about five years after the first working. In sections where such bushes have again become a menace a systematic reworking is necessary. Unless delayed too long the cost of reworking an area is generally much less than that of the original protective work. Two or three workings are ordinarily sufficient to protect the pines to maturity.

Different species of five-needled pines vary in their susceptibility to white pine blister rust. *Pinus monticola* is much more readily infected with the disease than is *Pinus strobus* of the eastern United States. Hence with the same number of Ribes present in the woods *Pinus monticola* would be subject to more severe damage than would *Pinus strobus* under the same conditions. To increase the difficulty the wild Ribes are particularly numerous along stream types in the *Pinus monticola* forests.

Blister rust does not only destroy young pines; it kills large trees with the same deadly certainty as small ones. However, small trees die within a few years after the attack while large ones usually live 10 or 15 years or longer before they succumb.

Blister rust enters a white pine tree through its needles and the first readily-visible outward sign of infection appears about 3 years or more after a tree has become infected.

Many foresters and others engaged in reforestation work in states where blister rust is established avoid the blister rust problem by selecting planting sites that have very few Ribes and by eradicating the Ribes from these sites before planting the trees. This line of reasoning is sound. When white pine is the species best adapted to the site one can determine the cost of Ribes eradication and let that decide whether white pine or some other tree species is the most profitable on the area.

Of utmost importance to those using white pines in reforestation work or in establishing shelterbelts or ornamental plantings is the guarantee that disease-free stock is being used. It is possible for white pines within a nursery to become infected with blister rust unless the environs of the nursery are free of all Ribes plants. To insure the best protection possible a systematic eradication of Ribes bushes should be made of the area adjoining the nursery. The European black currants within one mile should be removed.

Today, in the United States, we have white pines growing native on several million acres of land. These forests not only create considerable wealth, but in addition they possess esthetic and recreational value. Some of these forests are located at strategic points and are important for watershed protection. A serious loss would ensue should these forests be destroyed.

If we wish to grow white pines we must protect them. This protection must be thorough. It must be as systematic and regular a procedure as is fire prevention.

OUR HERITAGE

Oh Thou who watchest over all,
Who ruleth wisely, great and small,
Give us the sense to care for these
Great works of thine—our wondrous trees:
Teach us to hold in trust, and not destroy
These gifts we wish our children to enjoy.
Oh teach us all what we may do,
To save and help the forests, too:
Grant that, when in the woods, we show
More care with fire—the forest's foe,
So that Posterity may rise and bless
The hands that saved, for them, this loveliness.

Rafting on the Mississippi

FRED E. BOECKH, '28

Forest and Timber Superintendent for the Burlington Basket Company

EDITOR'S NOTE: *The subject matter contained in this article by Mr. Boeckh constitutes but one of the many phases of work in which he is engaged as Forester and Timber Superintendent for the Burlington Basket and the Burlington Land and Timber Companies—the latter company being a subsidiary of the Burlington Basket Company. Mr. Boeckh has unlimited occasions to apply the technical subjects in forestry and engineering that he took while a student at Iowa State College. Diversity is the keyword to his position, and for this reason he claims that his work is always interesting even after being on the job for four years.*

IN 1844, nearly a hundred years ago, the first log raft was floated down the Mississippi River. No power was used. The raft moved with the current and was guided by long oars or sweeps fastened on the back or stern of the raft. Strenuous working of the sweeps was required to keep the cumbersome raft in the main channel of the river.

It was not until 1863 that steamboats were used to push the rafts. By that time pine logs were being transported on the Mississippi from the mouths of the Wisconsin, St. Croix, Chippewa and Black Rivers to points as far south as St. Louis.

Many thrilling tales have been told of those glamorous rafting days; how the logs were first "driven" down the smaller streams to the big river, sorted and formed into rafts and towed to the sawmills farther south. Often the rafts were grounded on the numerous bars or "broken-up" on the point of an island or the pier of a bridge. Then the logs had to be "picked up" and entirely re-rafted before completing the downstream journey. Thousands of logs were lost going down the river. Months were required to make the trip.

In the days following the Civil War and continuing until around 1910 rafts could be seen on the river at almost any time of the day or night. Today a raft on the Mississippi is a rare sight and can only be seen on parts of the river. Many changes have been made in the methods of rafting and towing the logs. Motor driven launches have for the most part supplanted the more expensive steamboat. Rafts of five hundred logs are large now, whereas in the olden days a raft often contained ten thousand logs with more than a million board feet of material.

No other method of transporting logs from the forest to the factory has been found to be as cheap as this old time way,

especially when the timber and the mill are both close to the river. The cost per thousand board feet per mile is less than three cents or at least five times as cheap as the same distance by railroad.

Almost all of the two million board feet of logs used yearly by the Burlington Basket Company are transported to the factory at Burlington by raft. The company owns over five thousand acres of Mississippi River bottom land between Burlington and Dubuque. Logs from this land are rafted and floated down the river distances ranging from ten to two hundred miles.

Mature trees from the company-owned forest arears or from privately owned timberlands are cut mainly in the winter. The logs are hauled to the main channel of the river and piled along the high banks until the ice moves out in the spring. Hardwood

Figure 1. Hardwood logs are piled along the river bank during the winter.

varieties such as soft maple, cottonwood, white elm, red birch, sycamore, hackberry and white ash are cut. Care must be taken to insure plenty of the good floating varieties like the soft maple and ash, which are piled with the low-floating elm, birch and cottonwood. At the time of rafting a good floater is placed alongside the poor floater in order that the entire raft floats high in the water. Even the buoyant varieties will become "waterlogged" after being in the water for any length of time; so the rafts must be taken out of the water soon after they reach their destination to avoid sinking.

The floods on the Mississippi River, which overflow the island and bottom lands, generally occur soon after the ice leaves the river in the spring. Not every year do we experience these floods, but when they do occur it is almost impossible to prevent loss of logs if they are not all rafted before the water overflows the banks of the river.

No time can be lost in getting the logs rafted in the spring. With the water ice cold and the strong spring winds, this is a difficult task. Nor is it an easy job to guide the rafts during high water, with the treacherous currents, adverse winds and high waves. Landings are difficult and many times two and three lines have to be stretched to shore before the raft is landed for the night. Rafts are now rarely towed at night and each evening they must be tied to the shore at a place in the channel protected from the wind and waves.

Progress down the river is very slow. The speed of the stream is between two and a half and four miles per hour. The power of the boats increases this by several miles so from ten to fifteen hours are required to travel a distance of forty miles.

In the old rafting days, when pine logs were being towed, the logs were not fastened together. A boom or enclosure was first formed by joining the ends of long logs, and other logs were placed close together inside this boom. Ropes were stretched from one side of the boom to the other across the logs. Drawing these ropes very tight made the raft solid and as the pine logs floated high there was no danger of the logs "ducking" under the boom in rough water. The boom thus formed was called a brail and was usually from fifty to seventy-five feet wide and from six hundred to a thousand feet long. Three to five brails were securely fastened together side by side. The rafts were made up in sections in order to quickly separate them into parts when traversing narrow places in the river or going under bridges, where the distance between piers was too small for the entire raft to go through at one time.

Now that hardwood logs are being rafted instead of softwoods it is necessary to fasten each log to another to keep the entire raft afloat. They are now made rigid by placing small saplings or binder poles at right angles of the logs and at both ends. An eight inch square boat spike is driven through the pole into the log. The logs vary in length from ten to twenty feet; so the binder poles are spaced about ten feet apart in order to catch both ends of all the logs. A few years ago wooden pins were used in place of the boat spikes to fasten the binder pole to the log. The holes were drilled with large hand augers through the pole and part way into the log. An ash or oak pin was driven into this hole. Such an operation was a slow, difficult job, which

required a large crew of men and wasted a portion of the log. The wooden pin has now been almost entirely discarded for the quicker and cheaper boat spike.

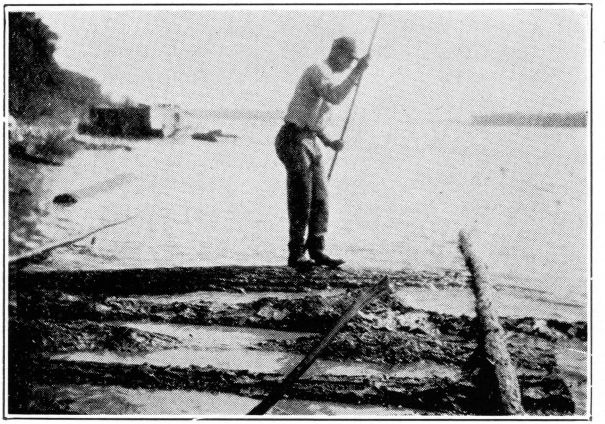


Figure 2. Placing the logs under the binder poles.

When the raft reaches its destination the spikes are pulled out and straightened for use again. A still better method of fastening the logs is that of using the old time chain dog or ring dog. This consists of a few links of chain with a piece of pointed steel called a dog at each end. One dog is driven into the log, the chain goes over the binder pole and the other dog is also

Figure 3. The raft showing the boats.

driven into the log. Driving both dogs into the log will draw the chain tightly over the pole and the log is thus securely held in place. These chains are more expensive, costing about thirteen cents apiece, but they can be used over and over again, are easier to remove and do not break off in the log during rough weather as the spikes occasionally do.

Brails are now from 150 to 200 feet long, and a raft is generally made up of three brails side by side, making a total width of about sixty feet. The boats are "hitched" into the stern of the raft and lines extend from the back of the launches to the outside corners of the raft. This gives the launch more rudder power in swinging the raft. Often more than one launch is used for towing, and even small stern wheel steamers are used. Either the boat is equipped with a small kitchen and sleeping quarters for the men or a cabin boat is carried along for these accommodations.

A crew of from three to five men is necessary on the raft. When the raft is being tied up each man has his particular station and job. The boats swing the raft around and point it upstream. In this way the boats can push against the current and help check the speed of the raft. The "head linesman" takes the end of a long rope in a skiff or small row boat, rows to the shore, lands and ties the rope to a convenient tree. The "checker" carefully pays out the line from the raft, his helper keeping the line from becoming tangled. Gradually the speed of the raft is checked by wrapping or snubbing the rope around a pole securely fastened down near the center of the raft. If the "checker" attempts to stop the raft too soon the line will break. When that happens a second and even a third line may be run to shore before the raft is stopped. To tie up a raft without parting a line or breaking up part of the raft is a difficult task when you consider the tremendous weight of the logs and the speed of the current. It is a time when minutes count and each man must know exactly what to do and where to be. It is always a great relief to the raftsmen when the tow of logs is safely moored for the night.

Rafting today, like in the old days, presents a life of hard work, with many a thrill and a need for quick thinking and action. While it will always be the cheapest means of moving logs to the factory from the timber lands along the river there will never be a great revival of rafting on the Mississippi. Small scale rafting like that carried on by the Basket Factory will doubtless be carried on in various sections of the river for a long time to come. Thus the art of rafting and towing logs on the big river will not be entirely lost.

My Friend—The Packer

FRANK KOWSKI, '33

As Patrick Henry took up his quill to write in defense of Liberty, I now take up my pen to write in defense of Uncle Sam's lowliest creature—the packer. Verily, I say he is not lowly.

To me there has never occurred a greater misrepresentation of a man's qualities and sterling ambitions as in the popular conception of a packer, his life, his work, his good nature, and lastly, his temperament. In most cases the hasty analysis of this personage has been unjustly founded and only too often exaggerated by a prejudiced mind.

Let us consider in all fairness the average smokechaser's viewpoint on "the man nobody knows" (apologies to Bruce Barton). I ask for consideration in all fairness because we must keep in mind that the smoke-chaser himself is a man who all too frequently spends dishonest hours in his cabin bed and turns those idle moments into a reminiscence of what a good packer should be and how the real packer falls below these idly set standards. To quote:

"A packer is never on time, regardless of when he is expected; he is exempt from firefighting unless under emergency conditions and is always absent when these conditions arise; his job is not a hard one, merely riding a horse all day and leading from four to ten mules; his language is profane, and as often as not is directed at beings other than his horses and mules. He generally spends his weekends at a ranger station where he gets his three squares a day set up by an honest-to-God cook; when he arrives at a camp after a day's ride he raises a vile commotion if supper is not waiting for him; he frequently forgets the mail and certain food supplies that the camp has been expecting for a week; he can generally tell the ranger where to get off and get by with it; when a crew at a camp is called out on a night fire he can rise up in his blankets and twiddle his fingers at the departing firefighters, and often does. He never has to go on a hike with a pack on his back; if, when riding along the trail he sees a small fire, instead of alighting and fighting the fire as he should, he calmly rides on to the next station and reports it, by which time the fire is much larger; and to top it all off, his yarns, told around the campfire, are highly imaginative and sometimes openly doubted."

By this time the smokechaser's conscience gets the best of him and he gets up from bed and goes back to work, generally pre-

paring the next meal. Thus it happens that the ill-fated packer has his reputation blackened all the more.

But what kind of a defense does the man in question have to offer? Very frankly, he doesn't bother himself with much of a defense. What others choose to believe is their business and none of his concern. That one fact typifies his nature to a great extent—his business is his own and other people's affairs are not his in which to meddle. It would do us well to pattern after him. Getting down to concrete facts, let us look into the life of this man and see for ourselves of what he is made. What is his background? What is his work? What is his nature?

To begin with, the packer has the background of a cowboy, horse-wrangler, rodeo-rider, or a government freighter, and sometimes all four. From these occupations he gains the most valuable fundamentals to his packing work—the knowledge of horses. This knowledge is not one obtained from books or from second hand experience, but from actual hard work and long hours spent, first, in the horse mastering him and finally, in him mastering the horse. This is not a mental combat by any means. At the start of his work for Uncle Sam he is presented with a heterogeneous group of partly broken mules or horses. To him is given the job of quieting these animals to the extent where he can pack from 250 to 300 pounds of supplies on their backs with some assurance that the load will remain there while he packs the next mule. His pack string consists generally of seven to ten animals with the preference given to mules where they are obtainable. The reason for this is the fact that a good mule can carry a heavier load and walk faster than a horse. The source of mules is generally from some rough string where unbroken stock is obtained at a premium.

In many of the western forests the center of activities lies far from a town and often far from a road. The packer immediately becomes the connecting link between the field men and the base of supplies. That is where his troubles start. Let us analyze a few of them with an open mind.

The packer is forced to work in all kinds of weather. If the mission he is on is a particularly urgent one he is required to start out in a drenching rain or a heavy snow. The temperament of his mules and himself react accordingly, but he must go on. Fifteen or twenty miles in a pouring rain puts him in a nasty frame of mind.

During a trip of this kind it develops that his mules have a decided preference for dry weather. After a few drops of rain hit their flanks they become highly unmanageable and a string of ten mules develops ten single minds as to what they want to do and where they want to go. The presence of a halter rope

from their nose to the mule ahead is only provoking to them and if it cannot be broken they can become so well tangled up in it that all forward progress is halted. Needless to say, the packer's wrath is justified. Thus it goes.

Upon arriving at a crew camp and delivering the mail, someone finds that a few drops of rain have penetrated one of the pack coverings and the words "Dear Sweetheart" in his personal letter have been obliterated. The packer starts to explain in terms found familiar to those spending much time with horses and mules and before long he has given the mistaken impression that he cares not if the whole letter were soaked.

The daily routine of the packer consists of rising at 4:30 to 5:00 in the morning and wrangling his mules. If he is at a ranger station a corral is provided and the situation is simple, but if he is located at a crew camp the situation becomes intricately difficult. Where Forest Service regulations prohibit hobbling and picketing, the mule is given a large range of places where he might wander to in one night, and he invariably takes the most distant of the selection offered. Thus several hours spent walking over rugged mountain country in high heeled boots starts the packer out in a representative frame of mind. He returns to camp with the mules and saddles and packs each mule with two side packs averaging 125 pounds each. Two packs of this size, times ten mules results in 2,500 pounds that he must lift to the backs of his animals and rope the pack into place. The trick of balancing a pack is an art in itself.

Now he is ready for breakfast. If he is fortunate enough to find his mules close at hand he can generally have breakfast at 7:00 with the rest of the crew, but if he is a little late he must cook it himself. About 8:00 a. m. he starts out on his day's ride. Mounting his saddle horse, he looks forward to a ride of fifteen, twenty, or thirty miles—it's all the same to him. Does he stop at noon, cook himself a warm meal, as most all other Forest Service employees do? He does not! He either goes hungry or takes several cold breakfast pancakes from his saddle bag and munches them as he rides. Appetizing, to say the least!

Either early in the evening or late at night he reaches his destination and dismounts. There with four to ten men sitting idly around watching him, he ties up his mules, unpacks, unsaddles, feeds his mules and turns them out for the night after tending to any trail casualties. Then as he washes the trail dust from his face and hands he thinks of supper. Yes, he thinks of what he will have to cook for himself. After he piles up and covers all his pack saddles and blankets to protect them from rodents he looks forward to a good five or six hours of sleep on the cabin or tent floor. And he enjoys it.

So we see that his day is not one of pleasure. Though his work is different, it is as hard as any other. Oftentimes when an emergency arises he is required to spend days in the saddle with no rest and little food, managing mules with a vicious mind of their own. To him falls the job of getting all the equipment to the fires . He is responsible for the food supply of all the men and crews back in the mountains. He is their one contact with the outside world. When anyone gets hurt and has to be taken out of the forest, they throw themselves on the mercy of the packer and it is up to him to get them out over rough mountain trails, despite the nature of their injury.

Let's go easy on him, men, because he's not such a bad son-of-a-gun after all. After this, when we go to speak evilly of his erring ways, let's remember that he has a job not many of us would want.

Here's to you, friend—may you always duck when your mule kicks!

From Ranger Bill up on the Beartrack District comes this bit of valuable information to use when things aren't going just right.

"I wonder why Rangers worry? Up here on my district there are only two things to worry about. The management of your district is either working or it is not working. If it is working there is nothing to worry about; if it is not working there are only two things to worry about. You are either doing your best or you are not doing your best. If you are doing your best there is nothing to worry about; if you are not doing your best there are only two things to worry about. Your health is either good or you are sick. If your health is good there is nothing to worry about; if you are sick there are only two things to worry about. You are going to get well or you are going to die. If you are going to get well there is nothing to worry about and if you are going to die there are only two things to worry about. You are either going to heaven or you are not going to heaven. If you are going to heaven there is nothing to worry about, and if you're going to the other place you'll be so darn busy shaking hands with your old friends you won't have time to worry—so why worry?"

The Navajo Sheep Herder

JOSEPH HOWELL, JR., '25

Forest Supervisor, Hopi Indian Reservation, Arizona

EDITOR'S NOTE: *The problem of grazing on forest lands is always a pertinent one to administer correctly. Mr. Howell has a grazing problem on the Hopi Indian Reservation, of which he is supervisor, that is unique and extremely difficult. He has about 2,500,000 acres of land under his jurisdiction. In presenting the Navajo as a sheep herder, it is clear to any one, after reading the article, as to why he is confronted with so important a problem in connection with grazing.*

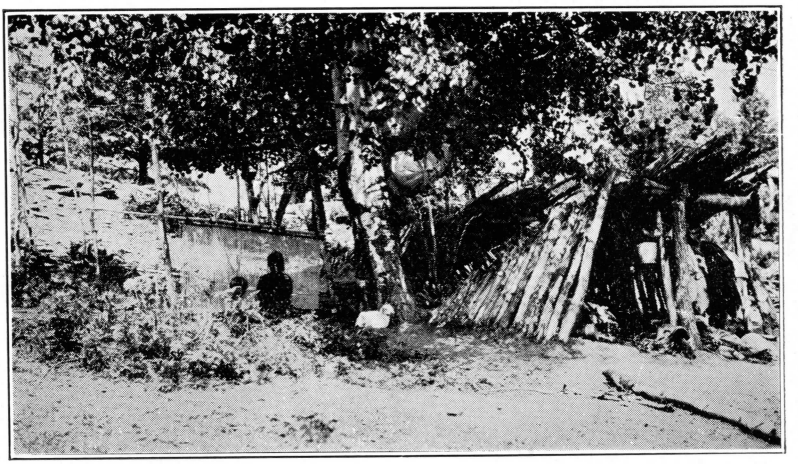
MOST popular literature states that the Navajo Indian is a "natural born sheep herder." This fallacy should be corrected since any experienced observer would soon find that the reverse is more than true. He would find that the sheep industry has survived only through the type of stock originally used and the persistence of the Navajo in preserving his flocks. The object of this paper is to present a few of the facts concerning the methods of handling the sheep and range by the Navajo Indians. It may be proper to first give a short history of the sheep industry in the Navajo country.

Sheep were, no doubt, introduced by the Spaniards about 1629, which is the first recorded contact with these people. The tribe was an obscure and small one, ranging as semi-nomads in northern New Mexico. These people continued to raid and carry on warfare until the United States Army, under Col. Kit Carson, subjugated them by force in 1863. They were transported to Fort Sumner, New Mexico, remaining there until 1868, at which time they were returned to the region about Fort Defiance, Arizona. Their livestock had been destroyed during this period, and as they were essentially a self-supporting people the government gave to them on their return some sheep and goats. At this time there were fewer than 50,000 sheep and goats and less than 10,000 Navajos. At the present time there are over 1,500,000 sheep and goats and about 45,000 Navajos on the same area of some 15,000,000 acres. The peak of numbers was passed some years ago, according to the livestock census available.

Since 1900 great arroyos have formed, extensive areas of land have become denuded of plants, and the desirable plant cover has been greatly reduced and converted to an undesirable weed range. These evidences are easily seen by a trained observer, but to the untrained mind there seems to be no difference. The old settlers and many of the Indians state that the range is no

worse than it ever was, and that the arroyos were ever present. This is a gross fallacy on the face, since in questioning these persons it is learned that they know very little about the changes that have been taking place. The usual statement is that "there is green stuff on the ground and that is food forage." They do not recognize the plants that have no forage value and seldom those that are deleterious to stock. They also ridicule any suggestion of range improvement and control of arroyos by regulating grazing. Much of this is due to a perverted idea of sheep raising and range management.

The Navajo is generally classed as nomadic in character, but this is not true at the present time. They seldom move more than three or four times a year and then to what may be termed permanent residences. At each hogan there is a corral of sorts into which the sheep are driven every evening for safe keeping.



A Navajo weaver

The sheep remain confined in these corrals until late in the morning, sometimes until noon. In fact, sheep may be seen in corrals at any time of the day. The sheep are permitted to forage and water until about noon, at which time they are returned to the corral. They remain there until three or four p. m., and then are driven out to forage for a short time. Later they are driven into the corral for confinement for the night. These corrals are in continuous use for many years. The droppings accumulate until they may become several feet in thickness. The sheep live in this filth for the greater part of their lives.

This method of close herding results in an almost complete denudation of the range for several miles about the corral. Since this procedure continues for several years, little remains in the immediate vicinity of the hogan. As there are many small herds, the average size is less than 500 sheep and goats, and in many corrals it does not take long for an area to become depleted. There are some areas unavailable until winter because of a lack of water, but these areas are all used when there is a snow fall. There is not an area, except in the more mountainous regions, that is not grazed during some part of the year.

Herding of the sheep during the limited period of grazing during the day is carried out in any manner to suit the owner. Small children, 4 to 6 years of age, may be seen with the sheep, hurriedly driving them with stones and sticks over the range. If a large band, a woman may be seen with these small children; also when they are ranging far from home. The Navajo man seldom goes without his horse, so that when a grown man is seen with the flock he is usually on horse back driving the sheep as fast as they will travel. Sheep have been driven from 30 to 40 miles in one day.

The Navajo is always suspicious of the other fellow, regardless of whom it may be; consequently the herds are small and heavy grazing is practiced. They believe, and rightly for them, that if they do not get the grass some other fellow may. Because of this characteristic they will breed their rams to several generations and then use ram lambs from these for breeding purposes. As a result the sheep have no new blood introduced and are highly inbred. This results in hairy-wool, light-weights and many off-color lambs. Some new blood has been introduced, but not a sufficient quantity to offset the strong-blooded characteristics of the native sheep. Most of the rams, old type, are lean, hairy-wooled, and usually many horned. They produce a lamb crop of about 50 percent in the best years.

Lambing season comes in early March or April in the Navajo country, although some lambs come in February. This means that the drop comes in a period of severe weather, and, as a result, there are severe losses. This is a season of great activity, which under proper methods of handling would be unnecessary. The ewes lamb with difficulty, seldom producing twins or triplets. These lambs are small and weak, and in many cases the ewe will not permit the lamb to nurse because of a scanty supply of milk. To overcome this evasion by the ewe the Navajo catches all such ewes and permits the lambs to nurse. This must be enacted every morning until weaning time and consumes much energy and labor. The cause is insufficient forage, yet the Navajo cannot see this important factor.

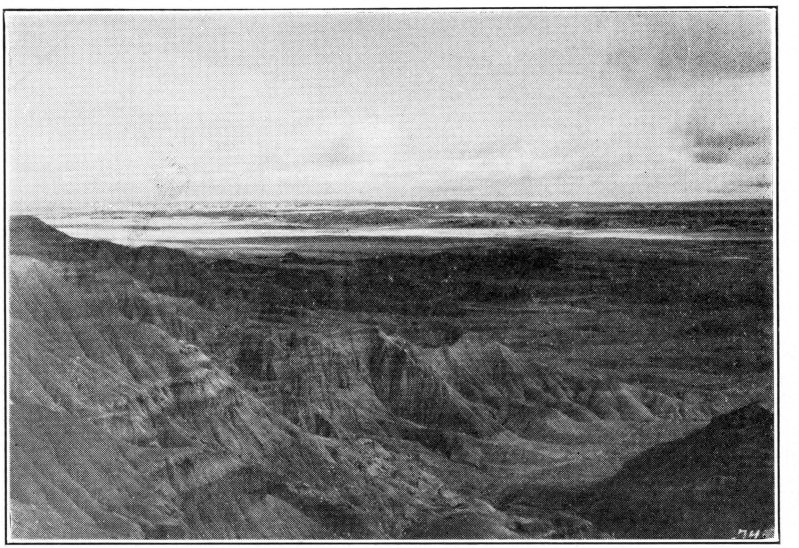
The resulting lambs go on the market at an average of from 50 to 55 pounds when about eight months old. These are the cream of the flock. The remaining lambs are under-weight, off-color, or hairy-wooled. Such lambs will fatten rapidly under proper feeding conditions, but this seldom occurs because the Navajo wants the same price for his cull lambs as for the fat lambs. The market cannot buy under such conditions and therefore refuses to purchase. Usually there are lambs of all ages in the flock because of the promiscuous breeding practices.

Shearing is another season of activity that is generally unnecessary. The shearing takes place in a small corral next to the main one, where a sufficient number of sheep to last a day's or morning's shearing are placed. The work of shearing starts with much vigor. The sheep are caught, the feet tied and the animal thrown to the ground. The shearer attacks the fleece with much energy and shortly, which may mean from ten minutes to a half hour, the fleece is taken from the animal. Ordinary sheep shears are used and upon examination these are found to be detempered, poorly ground, and generally set to pull rather than cut. This results in many flesh cuts and second cuts. Many times the wool is pulled from the sheep instead of being sheared. The fleeces, after shearing, are generally torn to pieces—these parts being thrown into a sack or a blanket with all sorts of wool and grades. The fleeces are full of sand and other trash and in some cases full of water. The wool sells for about half of what the regular market pays.

With all the industriousness attributed to the Navajo there are times when this seems to be sadly lacking. Considerable quantities of corn are raised as well as some other crops, yet with all that which they can raise and the surplus over consumption, they cannot and will not feed their sheep during a spell of hard weather or during a season of short feed. Any surplus that is raised—and this is much—goes to the trader for a small sum, then when needed the Navajo must repurchase this same corn for twice its actual value. Most of the corn fields average about 2 to 3 acres, though some fields may contain as much as 60 acres, yet the surplus goes its way and the sheep goes hungry. It is possible for these people to raise sufficient corn to feed some of their sheep for a period of the winter season or the lambing season.

Salting sheep is generally unheard of in the Navajo country. Dependence is placed upon the salt plants such as salt bush (*Atriplex* sp.), greasewood (*Sarcobatus* sp.), and such other plants as may accumulate salts in their growth. The argument presented by the Indians and some traders is that the sheep will not eat salt when offered to them. The reason for this attitude

is that the sheep do not see salt nor know what salt is in the mineral form. Thus, to obtain the necessary salt the Navajo drives his sheep for long distances at a high rate of speed, which is injurious to both sheep and range. Because of the great salt hunger the salt plants are generally damaged, and in some cases they have been found to be completely stripped of all foliage, so that in time these plants succumb from such treatment.



Painted Desert in Arizona

Goats are another important item among the Navajos that have caused much discussion. These animals are run with the sheep and are handled in the same manner. The animals being of a hardier nature can survive where a sheep would starve. Consequently they become fat and remain fat while the sheep starve and die. The sheep have eaten all of the choice vegetation and now there is nothing left but the poorest and most undesirable forage. The goat has a more depraved appetite and will eat and thrive on this poorer type of forage. The goat will produce about one pound of mohair per year, much of which is not salable. The animals cannot be sold; so it is necessary for the Indians to eat them for food. The herds average about 30 percent goats, not all of them producers of income, though they do lend some to the support of the Indians. The goat destroys range that the sheep could use to better advantage.

From this it is seen that the Navajo, although somewhat industrious, is not a sheep herder. The Navajo will only become an important sheep raiser when he conserves his energy and the range.

THE GHOST TREES

Down by the woodland river,
Whose mirror-glow attracts
Proud trees to pose reflected
With sunsets at their backs,

Are standing three white birches,
Aloof and strangely pale,
And shadowed in the river
With the sheen of phantom sail.

They sometimes haunt our fancy
With most unearthly tease,
Like ghosts—or is it witches
That always come in threes?

They might be mythmaids, musing
Where old gods used to fare,
Or phantom columns, lifting
From old shrines buried there;

Or maybe woodland fairies
Pretending to be trees;
But do the rustic elfins
Wear frocks below their knees?

And these are always standing
Ghost-still and gazing far
Along the paths—and sometimes
They sigh—I think they are

The ghosts of stately pine trees
That fell to common ax,
Come back to warn this forest
And haunt the woodsman's tracks.

—*Gertrude Barbrey Hays.*

An Introduction to the Indiana Sand Dunes

JACOB JAUCH, '33

A unique and fascinating recreational area for a large portion of the millions of inhabitants of Chicago, Gary and vicinity, is afforded by the Sand Dunes of Indiana. Most people of Chicago do not realize what a remarkable piece of nature lies at their convenient disposal, and many more fail to appreciate its unusual beauty and formation.

Sand dunes in themselves are nothing unusual, for they exist throughout the world, but the presence of a large tract of dunes in the middle west makes this region of great interest. One may encounter these sand dunes in various places along the Lake Michigan boundary of the states of Wisconsin, Illinois, Indiana and Michigan. However, the most interesting stretch and also the most important one is that belt starting at Miller, Indiana, only 42 miles from the heart of Chicago, and extending to Michigan City, Indiana, embracing the Indiana Dunes State Park, which is the particular region undertaken in this treatise.

A good highway system enables one to reach the State Park in less than two hours from the center of Chicago. Railroads, interurban lines and even steamships offer means of transportation to the dunes, making this wonderland available to everyone. For the week-end visitor this region offers numerous recreational facilities. Swimming in cool Lake Michigan with miles of wide, clean, sandy beaches makes this the ideal sport. When the sands become too hot, the forests immediately behind the beaches afford excellent shelter. Hiking through the woods along well-marked trails, up and down great sand hills as high as 200 feet brings beautiful Lake Michigan into full view on one side, while wooded valleys are seen adorning the inland. Cumbrous hiking boots are unnecessary to traverse the surface of these trails of light forest litter and sand, which can be hiked to a considerable extent even in bare feet. For the naturalist, a more interesting region is difficult to find in the mid-west, where there exists such a wide variety of physiography and plant as well as animal life in such a limited area.

Although a considerable amount of material has been written on sand dunes, the purpose of this article is mainly to give an account of the tree and shrub growth found in and around the Indiana State Dunes Park, touching briefly on the physiography of the dunes in order to offer a better understanding of the existence of so large a variety of plant growth.

The formation of sand dunes is brought about by the agencies of wind (aeolian) and water (neptunian) sediments. The transportation power of water is vastly greater than that of wind, but wind is the most significant element in dune growth. Since the shore line direction along the Indiana Dunes tate Park averages N. 60 degrees E., winds with a westerly component are most significant in dune transformations*. Gales—40 miles per hour and over—are of great importance in the dunes, since one day of gale may result in greater changes than several months of normal breezes.

Courtesy: Indiana Department of Conservation

Waverly Beach, Indiana Dunes State Park, Indiana.

Rainfall averages 33 inches a year, each month having at least two inches, thus affording abundant moisture for diversified vegetation. The sand is too coarse to permit capillary attraction to bring moisture to the surface for evaporation. This means that much of the moisture is available for vegetation, and at all times, there is moist sand at a depth of a few inches.

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*Cressey, G. B., "The Indiana Sand Dunes and Shore Lines of the Lake Michigan Basin."

The topography of this region is traced to lacustrine and eolian processes, operative since the retreat of the Wisconsin ice sheet. The physiography of the main dune complex along Lake Michigan is the outstanding feature. This section averages one mile in width and is almost entirely forested, except for the areas of shifting sand near the shore, which project inland from the lake into the wooded tract as great tongues of sand and are commonly free from vegetation. Within the dune belt, the very uneven topography consists of hills, short ridges and basins characteristic of dune tracts. Some slopes are as steep as 32 degrees, the angle of rest for loose sand. Irregular hollows often lie within the dunes complex. Level tracts separating the dune belts are typically marsh muck land, with little relief, and where undrained and uncultivated, the land tracts are covered with grasses or swamp vegetation.

The highest points of elevation are along the shore line—Mt. Tom, of 200 feet, being the highest. With respect to our western mountains, this point can hardly be justified as being called a mountain, but when one considers the composition of this peak as pure sand, it is truly a mountain. A bird's-eye view of duneland and lower Lake Michigan can be had from the top of Mt. Tom, which also has on it a high fire look-out tower, owned by the Indiana Department of Conservation.

A few of the many interesting features along the beach are the "blowouts" and the so-called "singing sands". The "blowouts" are amphitheater-like excavations formed by wind erosion and consequent movement of sand landward. They are found along elongated areas of bare sand, projecting tongue-like inland from shore. The "singing sands" is an interesting phenomenon. as the sands emit a singing or resinous sound when disturbed by the "scuffling" of the feet or by the passing of a stick through the sand. The area in which this peculiar sand is found is a narrow belt, 25 to 100 feet wide, extending parallel to the shore along the lower beach. The explanation of this phenomenon are several, but all are inconclusive. One supposed reason is the formation by evaporation of a film of salt about each grain of sand; another more reasonable answer is the presence of a certain moisture condition in order to produce the "singing" effect.

As far as the forester is concerned, perhaps the most interesting condition is the existence of the tree and shrub growth. Although the region has no forests of real commercial value, their main interest is, and should be, from a botanical and recreational viewpoint.

Coniferous growth is the scantiest in the dunes. Dwarf juniper (*Juniperus communis* var. *depressa*), tamarack (*Larix laricina*)

in the swamps, while white pine (*Pinus strobus*) and red pine (*Pinus resinosa*) found scattered in the sandy soil, constitute the coniferous growth.

Hardwoods are very numerous throughout the dunes and represent a mixture of the typical Central Hardwoods and Northern Hardwoods types. Under good soil conditions and with protection from the shifting sands, these trees attain a surprisingly good size for this region, whereas on the less favorable sites, the tree growth merely represents so many shrubs.

The oaks are perhaps the most abundant trees throughout the dune lands, with the black oak (*Quercus velutina*) as the most common one. Other oaks present are, shingle oak (*Q. imbricaria*), white oak (*Q. alba*), Hills' oak (*Q. ellipsoidalis*), bur oak (*Q. macrocarpa*) and swamp white oak (*Q. bicolor*) frequent on old beach ridges. The other member of the beech family is the beech (*Fagus grandifolia*) found in rich, cool, loamy woods.

The members of the birch family represented are: hazelnut (*Corylus americana*) abundant in the thickets, hop hornbeam (*Ostrya virginia*), blue beech (*Carpinus caroliniana*) on the banks, and birches of the species yellow (*Betula lutea*) in low, wet woods with paper birch (*B. papyrifera*) rather rare. Speckled alder (*Alnus incana*) common in moist thickets and along streams, is the other member of the birch family present.

The willow family has the widest range of species represented by any one family. Willows serve their purpose well by holding the sands in check, and are found widely distributed under numerous conditions. The species present are: black willow (*Salix nigra*), peach-leaved (*S. amygdaloides*), crack willow (*S. fragilis*), white willow (*S. alba*), sandbar (*S. interior*), and pussy willow (*S. discolor*). The poplars consist of: silver poplar (*P. alba*), quaking aspen (*P. tremuloides*), large toothed aspen (*P. grandidentata*), cottonwood (*P. deltoides*) and balsam poplar (*P. balsamifera*) sparingly.

The common walnuts, the butternut (*Juglans cinerea*) and the black walnut (*J. nigra*) are found in the better sites, while the other members of the walnut family, shagbark hickory (*Carya ovata*) an dpignut hickory (*C. glabra*) are found in the sandy woods. Only one species of sassafras (*Sassafras officinale*) is present, but this plant is the most common woody plant found in the dunes—usually in a shrub form.

In the nettle family, there are the slippery elm (*Ulmus fulva*) found in rich, wooded dunes, and the white elm (*Ulmus americana*); hackberry (*Celtis pumila*) a dwarf shrub found on tops of bare, high dunes, while the last member of this family is the mulberry (*Morus alba*).

The maples are represented by: sugar maple (*Acer saccharum*), silver maple (*A. rubrum*) the most common one which is found in low woods and bogs, and the boxelder (*A. negundo*) present along streams.

Species of trees and some of the shrubs constituting only a few members of the other families may collectively be listed among the following: sycamore (*Platanus occidentalis*), infrequent along the creeks; white ash (*Fraxinus americana*) in the woods along the creeks; witch hazel (*Hamamelis virginiana*), found frequently in dune woods; honey locust (*Gleditsia triacanthos*), and black locust (*Robinia pseudo-acacia*) are the tree members of the pulse family. Basswood (*Tilia americana*) is found common in shrub form. Black gum (*Nyssa sylvatica*) is very common in low, marshy woods; cornus species such as the flowering dogwood (*Cornus florida*) and Red Osier dogwood (*C. stolonifera*) are also very abundant. The money tree (*Ptelea trifoliata*) is very profusely scattered everywhere. The harmless staghorn sumach (*Rhus typhina*) and its poisonous relatives, the poison sumac (*Rhus vernix*) and poison ivy (*R. toxicodendron*), are quite abundant.

Trees, shrubs and herbs of the rose family are numerous, with the following species serving as typical representatives: wild plum, all kinds of cherries, chokeberry, crab apple, service berry, hawthorn, roses, ninebark, raspberry, blackberry, cinquefoil and the wild strawberry. Gooseberry and blueberry are the other edible berries found.

Numerous species of violets and members of the mustard family are present. In the thistle family, one finds a good representation in the form of such species as goldenrod, aster and sunflower. Two very common species found are: common elder (*Sambucus canadensis*) of the valerian family, and honeysuckle (*Lonicera dioica*) of the honeysuckle family, abundant on dunes and the banks of streams. Wild grapes are present in numerous places, crawling along the sand or climbing up trees. Species of the purslane family and buttercup family are numerous.

Without going into the realm of the herbaceous plants present, it might be of interest, however, to mention a few of the species, which include the following: spiderwort, lilies, Jack-in-the-pulpit, false Solomon's seal, iris, orchis, ladies' tresses, tumbleweed, sedges, bulrushes and cat-tails; grasses such as beard grass, wood grass, panic grass, foxtail grass, sand bur, wild rice, timothy, bent gras, and the very common dune grass (*Calamovilfa longifolia*).

The total number of plant species recorded to be present in these dune lands are over 1,200. Insects found inhabiting this region constitute a still greater number. It is no small wonder

that far-sighted people have long ago realized the value of this land of nature. The Indiana Department of Conservation is to be commended on its foresightedness and achievement in setting aside a portion of those interesting dunes in the form of a state park, for only in such a way the full beauty and recreational facilities can best be perpetuated.

MOUNTAINS

I tried to love your mountains
With their high and sunlit summits,
Their low white clouds that broke like waves
Against great granite scars:
The sound of drowsy water
As it trickled to the rivers,
The trees like index-fingers
Ever pointing to the stars.

I tried to love your mountains . . .
The silver peace that lingered
In sheltered nooks, and curving paths
Beneath some vine-hung tree,—
But I could smell the tang of salt
Where great blue waves were breaking,
And in my ears I ever heard
The sand-dunes calling me.

When you get to know a fellow,
know his joys and know his cares,
When you've come to understand him
and the burdens that he bears,
When you've learned the fights he's
making and the troubles in his way,
Then you find that he is different
than you thought him yesterday.
You find his faults are trivial
and there's not so much to blame
In the brother that you jeered at
when you only knew his name.

—*Edgar A. Guest.*

Honktown, Ore.
April 1, 1933.

Hello Hank,

You were asking me in your last letter how things stood up out here for work and I'm here to tell you they're plenty tough.

Why, just a stretch ago I went down to the slave market to knock me down a job so I could fight for my cakes and it was plenty mean. I snaked in the office and the shark told me to wait my turn with the rest of the herring-chokers. So I had to go wait in line with two bohunks, a couple of breeds, a frog, a cotton picker, a ski-jumper and a square head.

Well, when my turn finally came I had a chance at hook tending, choker setting, or donkey punching. The shark told me about a gypo outfit down the road about two miles that wanted a couple of fallers. Well, you know how I like my juniper-juice, and since a flop in the bull-pen in this town ain't so bad I ups and glommed on the job with the gypo outfit, just to be close to town.

I went down and gave the layout the once over and decided I'd like it. The grub shack looked pretty good and you know how I like the chuck. They had a gut-robber, two flunkeys, and two pearl divers working in the kitchen, so it looked pretty swell from that angle, providing that the meat-burner wasn't too bad.

I looked up the pay cheater and he told me where I could find the bull of the woods. The gaffer kind of sized me up and got my bore and stroke and then asked me if I was a Wobbly. I told him I was a damn good timber beast but no Wobbly. So I got the job. He told me I could start in the morning at ten sawbucks a month, but I'd have to pay him four sawbucks and a vee every month for my chuck and a flop every night. So I said it was jake.

The next morning after a feed on monkeyblankets, salves, and sand, beside a few cackleberries, I took my Swede fiddle and a little Snooser to work with me and started in. But he was a dingy bindlestiff with a gimp in the right foot and not worth a darn. They later gave him a job digging a slop trench with a ukulele.

I later got a half warwhoop for a sidekick and he at least didn't drag his feet when he rode the misery whip. The bull said we got along jake. The only trouble with the bow-and-arrow was that he took up trying to spit-quick-or-puke and he wasn't used to it. Made him so dizzy that he didn't know whether Socrates was poisoned or hit in the back with a bull hook. Right now I'm falling with a Scandinavian from the old country direct.

By the way, Old Jim, the gandy dancer, got in a fight and

got hit in the head with a clam gun and cashed in his chips. Too bad, too, after he carried the banner to pull through the hard winter.

Well, so long,

Eric.

* * *

WOOD YOU BELIEVE IT?*

RUSSELL E. GETTY

One bright summer day a ——— looking man, named ———, sat on a —— ——— by several years than the girl, ———, who shared his seat on the ——— looking out across the ———. His dog idly watched an air——— fly overhead.

"I ——— for some good fishing, but I believe ——— ——— be scarce in these waters. What do ——— think?" he said, knocking the ——— from his cigar and offering her a piece of ———.

Just then he saw the girl ——- —— her hand to her heart.

"Are you ill?" he asked.

"No, indeed, I am never ———;——— healthy girl does not exist. I was afraid the ——— bite. Just hand me my ——— coat. ———ling, I am all right now."

"That's a ——— of a coat."

"Yes, I asked ——— to buy me a raccoon coat, but he ——— could afford this."

"Why doesn't he ——— for the money he owes him? The old ———."

"He says he never ———.———priced fur does not wear well, but a better lining of ——— ——— improve the garment."

"Oh, Oh!" she cried. "There's a bug on my arm."

"——— ———? Pshaw. It's only a ———."

"Well, I hate bugs. The things I've ——— ——— make anyone look upon them with aversion."

Just then the hound treed an opossum. First the ——— bark at the opossum, then the ——— ——— run from the dog. It was very amusing.

"———, ———," she laughed. "What a comical ——— of animals."

——— looked so sweet that ——— could not resist kissing her ——.

"Don't," she said. "You may kiss ——— but you daren't kiss me."

At this rebuff ——— began to ———, but soon he controlled his grief and simply said, "———, baby."

*Can you fill in the blanks by using the specific or generic names of some common trees and shrubs? The correct answers are found on page 87.

FOUND

Once through the forest
  Alone I went;
To seek for nothing
  My thoughts were bent.

I saw i' the shadow
  A flower stand there;
As stars it glisten'd,
  As eyes 'twas fair.

I sought to pluck it,—
  It gently said:
"Shall I be gathered
  Only to fade?"

With all its roots
  I dug it with care,
And took it home
  To my garden fair.

In silent corner
  Soon it was set;
There grows it ever—,
  There blooms it yet
—Goethe.

EXALTATION

In the green depths of a majestic wood
  I heard God speak. A murmur stirred the glade,
Some night-bird's wing just touched me as I stood,
  Pure eyes of heaven looked down. I knelt and prayed.

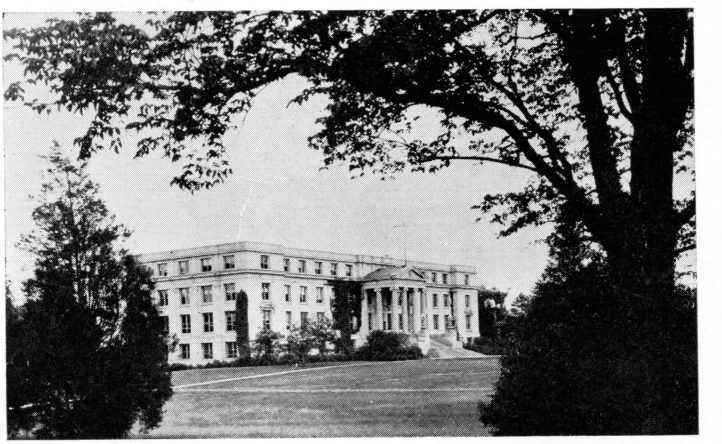
And in the stillness of the breaking morn
  I talked with God. In such high altitude
Of soul I felt an ecstasy new-born,
  Humility, with sovereign power, endued.

Lo! I have walked with God. A little child
  Smiled on me, and a little hand clasped mine.
My soul is raised, triumphant, undefiled,
  Heaven's gate is opened by a love divine.

—Harriet Kendall.

FOREST STUDENT ACTIVITIES

SENIORS

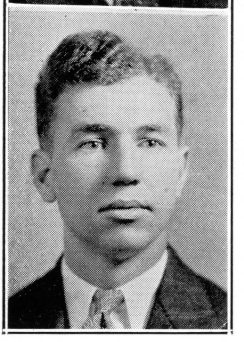


FORESTRY DEPARTMENT
IOWA STATE COLLEGE,
AMES, IOWA

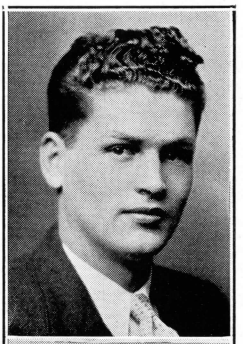
Bailey, George Elmer—"Pop"
Red Lodge, Montana
Camp:
Shasta Nat'l. Forest, '32
Experience:
Improvement work, Nez Perce Nat'l. Forest, '29
Lookout, Nez Perce Nat'l. Forest, '30
Improvement work, Flathead Nat'l. Forest, '31
Forestry Club
Freshman track and cross country

Curtis, Robert Lyle—"Bob"
Burlington, Iowa
Camp:
Bitterroot Lake, Montana, '30
Experience:
Surveying, Des Moines County, '31
Forestry Club
Divisional basketball

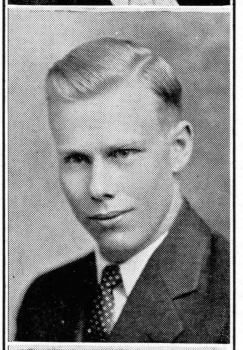
Dannen, Dwight L.—"Danny"
St. Joseph, Missouri
Camp:
Wenatchee National Forest, '33
Experience:
Planting, Monument, Colo., '33
Alpha Zeta
Cardinal Key
National Collegiate Players
Iowa State Players
Alpha Phi Omega
Veishea, dramatic coach, Night Show 1; director May Fete, 2; manager Night Show, 3.
Forestry Club
Delta Sigma Phi



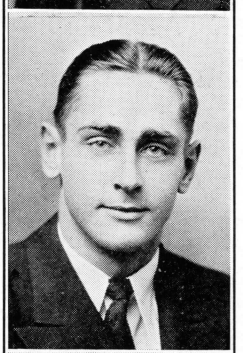
Dunn, Milfred R.—"Dunn"
Glenwood, Iowa
Camp:
Paulina Lake, Oregon, '31
Forestry Club



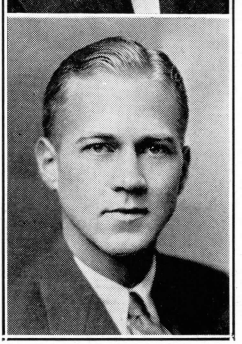
Gottschalk, Fred William—"Freddy"
Davenport, Iowa
Camp:
Bitterroot Lake, Montana, '30
Football, 1
Track, 1, 2, 3, 4; numeral, 1
Veishea Open House, '32
Forestry Club, secretary-treasurer, 4
Interfraternity Council, 4
Alpha Phi Omega
Delta Sigma Phi



Grau, Edwin H.—"Axel"
St. Charles, Missouri
Camp:
Bitterroot Lake, Montana, '30
Experience:
Trail crew, Cabinet Nat'l. Forest, '31
AMES FORESTER, Circulation Manager, '32
Forestry Club, secretary-treasurer, '30 '33

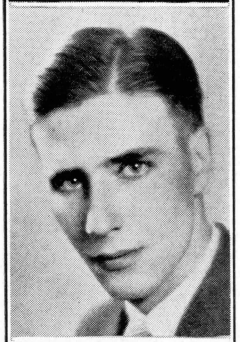


Graves, Walter Leonard—"Walt"
Washington, Iowa
Camp:
Bitterroot Lake, Montana, '30
Experience:
Trail crew, Bitterroot Nat'l. Forest, '31
Basketball, '29, '30
Veishea Open House, '31
Forestry Club
Scabbard and Blade
Alpha Zeta
Kappa Sigma

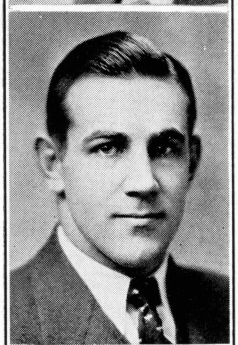


Henrikson, Einar L.
Gary, Indiana
Camp:
Paulina Lake, Oregon, '31
Intramural basketball, '30, '31
Forestry Club, President, '32
AMES FORESTER, Advertising Manager, '32; Assistant Editor, '33
Band, 1, 2, 3, 4.
Tau Kappa Epsilon

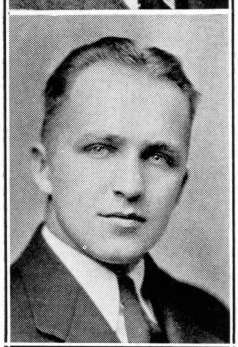
Hart, Eugene D.—"Gene"
Madrid, Iowa
Camp:
Wenatchee Nat'l. Forest, '33
Experience:
Trail crew, Lolo Nat'l. Forest, '29
Forest mapping, Selway Nat'l. Forest, '31
Prep cross country
AMES FORESTER, Ass't. Advertising Manager, '31; Editor, '32
Alpha Zeta
Forestry Club
Alpha Tau Omega



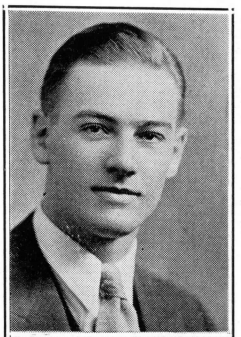
Harvey, Ralph R.—"Uncle"
Missouri Valley, Iowa
Camp:
Hayden Lake, Idaho, '28
Veishea Open House
Forestry Club
Phi Gamma Delta



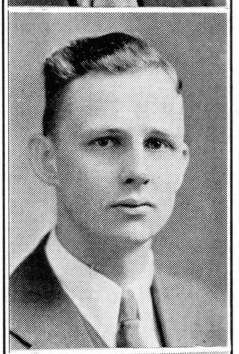
Hess, Robert W—"Wattaman"
Cresco, Iowa
Camp:
Bitterroot Lake, Montana, '30
Experience:
Snoqualmie Falls Lbr. Co., Wash., '28, '29
Webb Logging Co., Wash., '29
Football, 1
Wrestling, 1, 2, 3; Captain, 2; United States Olympics, 174-pound class, '32; Big Six Champion, '33; National A. A. U. Champion, '33; National Intercollegiate, '33
Veishea Open House, Chairman, '32
Varsity "I"
Alpha Zeta
Forestry Club



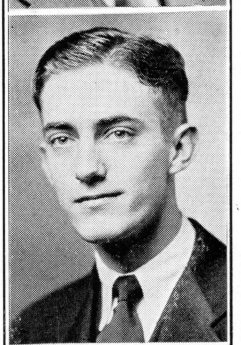
Jauch, Jacob—"Jake"
Chicago, Illinois
Camp:
Hayden Lake, Idaho, '28
Experience:
Trail crew, Kaniksu Nat'l. Forest, '29
Lookout, Kaniksu Nat'l. Forest, '31
Ag Council, 3, 4
Veishea Open House, '32
Forestry Club, Vice-President, '32; President, '33
AMES FORESTER, Associate Editor, '32; Editor, '33
Pack Essay Prize, '31
Alpha Zeta
Farm House



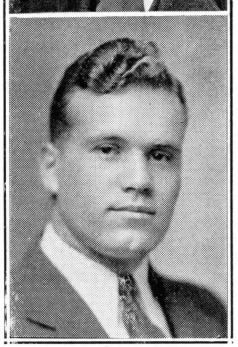
Kowski, Frank F.—"Cousin"
Burlington, Iowa
Camp:
Bitterroot Lake, Montana, '30
Experience:
Northern Montana Protective Ass'n., '31
Trail survey, Flathead Nat'l. Forest, '31
College Cossacks
Military staff
Forestry Club, Vice-President, '33
Foresters' Rifle Club, President
AMES FORESTER, Associate Editor, '31



Olson, Earl Franklin—"Olie"
Sioux City, Iowa
Camp:
Bitterroot Lake, Montana, '30
Experience:
Ten thousand mile trip with Fay Clark through Southern and Eastern States, '31
AMES FORESTER, Business Manager, '33
Bomb, '32
Forestry Club
Foresters' Rifle Team
Veishea Float, '32; May Fete, '30
Phi Kappa Phi
Gamma Sigma Delta
Phi Sigma Kappa



Steavenson, Hugh Alfred—"Steve"
Blair, Nebraska
Camp:
Plumas Nat'l. Forest, '29
Experience:
Fire guard, Medicine Bow Nat'l. Forest, '30
Fire guard, Coeur d' Alene Nat'l. Forest, '31
Nursery, Old Lynne, Conn., '32
Freshman cross country
Forestry Club
Veishea, 2, 3
Kappa Sigma

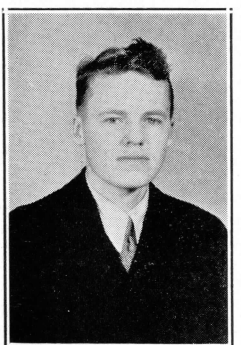


Stone, Wendell E.—"Rip"
Delhi, Iowa
Camp:
Plumas Nat'l. Forest, '29
Experience:
Timber Reconn., Fishlake Nat'l. Forest, '30
Timber Reconn., Wyoming Nat'l. Forest, '30
Timber Reconn., Lassen Nat'l. Forest '31
Timber Reconn., Modoc Nat'l. Forest, '31
AMES FORESTER, Ass't. Editor, '31
Forestry Club, Vice-President, '32

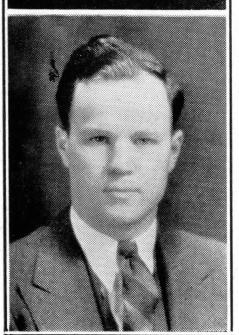
Gibson, Lawrence M.—"Gib"
Harris, Iowa
Camp:
Wenatchee Nat'l. Forest, '33
Experience:
Glacier Nat'l. Park, '30
Wrestling, 1, 2, 3, 4, 6; Big Six Champion, 118-pound class, '30, '31
Varsity "I" Club, Secretary, '32
Frisbie Fellowship, President, '33
Forestry Club

Ponomareff, Nicholas—"Nick"
Vladivostock, Siberia
Camp:
Lake Superior, '26
Experience:
W. P. R. R. Topographer, San Francisco, Calif., '28
S. P. R. R. Civil Engineer, Santa Barbara, Calif., '28
Baja Cal. Canal Co., Sonora, Mexico, Soil Surveyor, '28, '29
Land Surveyor, Real Estate Subdivision Work, California, '29-'31
Forestry Club

GRADUATES



Anderson, Clarence E.—"Andy"
Geneva, Ill.
Graduate, University of Minnesota, '31
Experience:
Lookout, Bitterroot Nat'l. Forest, '28
Trail Crew, Bitterroot Nat'l. Forest, '28
Timber Survey, Tahoe, Calif., '30
Tau Phi Delta
Alpha Zeta
Xi Sigma Pi



McComb, Andrew L.—"Mac"
Vandergrift, Pa.
Graduate, Pennsylvania State College, '32
Experience:
Allegheny Forest Experiment Station, Field Assistant, '30-'31
Pennsylvania State College, Research Assistant, '31-'32
Pennsylvania State College, Field Ass't. in Forestry Summer Camp, '31
Xi Sigma Rho
Alpha Gamma Rho

Alumni Directory

(Extract from the 1950 Ames Forester)

By FRANK KOWSKI, '33

Bailey, George—The last time we heard from George we learned that he was demoted from the position of Senior Silviculturist to a compassman on a survey crew.

Curtis, Robert—Curtis is studying forestry in the South Sea Islands. He is working on yield tables for second growth palm. He mentioned the fact that he liked the grass skirts in those tropical breezes.

Dannen, Dwight—Dannen's own production (in which he is starring) has just completed its third week on Broadway. The name of his play is "The Vagrant Forester" or "Where Is My Wandering Boy Tonight."

Dunn, Milford—Dunn is sheepherding down on the Rio Grande. His greatest difficulty, he says, is learning how to make a U-turn.

Gibson, Lawrence—Gibson went insane back in 1943 when the government passed a bill to eradicate quail as a public nuisance.

Gottschalk, Fred—Fred tried to pass the J. F. Exam again in 1945, making his seventh attempt. We haven't heard how he came out.

Grau, Edwin—Grau is working under Jauch in Berlin. He recently was promoted to the position of "Förster". He must have quite a pull over there some place.

Graves, Walter—The last we heard from Graves was when he led the second unemployed army to Washington back in 1939, trying to have the Forest Service transferred to the War Department.

Hart, Eugene—Hart has charge of the Congressional Forestry Library in Washington. He is just recovering from an attack by an overgrown bookworm that was found in an obsolete volume on mensuration by D. B. Demeritt.

Harvey, Ralph—Harvey was killed back in 1940. The report is that he was up in Alaska and kept an Eskimo girl out all night. When it got light at the end of six months her father found them and did things to Ralph.

Henrikson, Einar—The last report on Einar was that he was bossing a camp of Snoosers when they were salvaging stumps up in the Minnesota woods.

Hess, Robert—Having finally overcome the Swedish wrestler who captured the 174-pound class world's amateur wrestling title within his reach back in the 1932 Olympics, and having served as chief forester for the United States, Hess has started all over again to work his way from the bottom up. We understand that he is conducting a ballet dancing school on the Hawaiian Islands.

Jauch, Jacob—Jake has the position of "Oberlandforstmeister" in Germany with headquarters in Berlin. He recently translated Hartig's thirty volumes on silviculture into Greek and is now selling them to Italian banana peddlers.

Kowski, Frank—Kowski went back into the Rockies on a fishing trip in 1937 and has never come out.

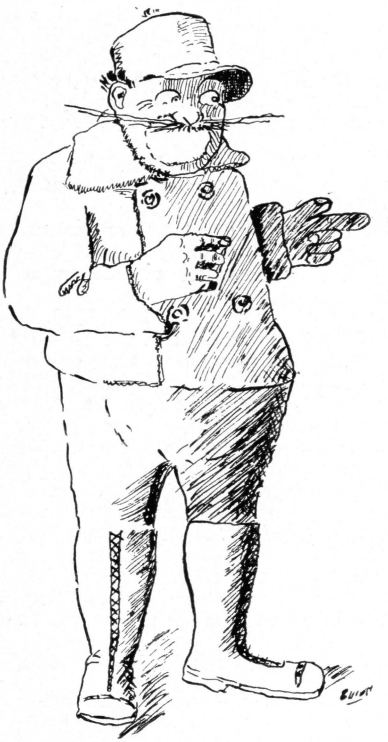
Melvin, Clair—We have heard nothing from Melvin since he graduated from Iowa State back in 1946. We understand that he had trouble with a Lumber Markets course. The markets never remained stable long enough for Doc to really understand what it was all about.

Olson, Earl—Olson is in charge of the Middle States Experiment Station at Nevada, Iowa, and is doing research on the damage of Dendroctonus brevicomis to hollyhocks.

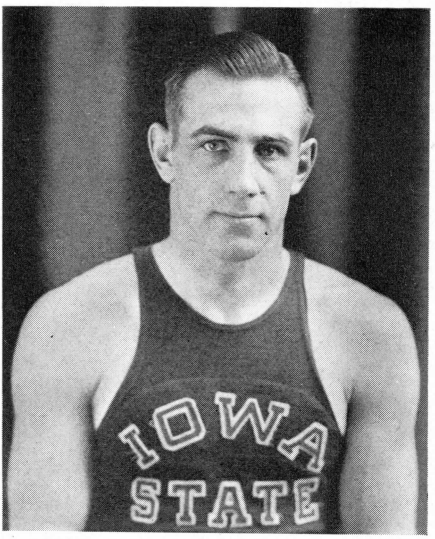
Ponomareff, Nicholas—The last we have heard from Nick was back in 1945, when he overthrew the Sixty Year Plan in Moscow. He was advocating the growing of large sugar cane instead of timber. He has instituted a Fifty-nine Year Plan, which is now in effect.

Steavenson, Hugh—In 1947 Hugh was up in Iceland selling Christmas trees and mistletoe to the natives. He now controls the Christmas tree market in seventeen foreign countries.

Stone, Wendell—Stone accepted a position as Harriman Professor of Forestry in the International Forestry School at Helsingfors, Finland, in 1941 and still holds that position. He is doing a lot of private research work on finding new uses for match sticks.



It's "Paul" again!



"Bob" Hess

ROBERT HESS

"Wot-a-man! Wot-a-man!"

This exclamation, destined to follow Bob Hess to the National Olympic Games, was first uttered by an ardent mat follower in 1925. As a nickname it has been well earned. As a war-cry it has inspired Iowa State wrestling fans for four years. It exemplifies the admiration of Bob's smashing tactics on the mat and his outstanding sportsmanship in all his meets. Whether Bob has wrestled his man weight to weight or spotted him thirty or forty pounds, his attack has never varied from the aggressive rush for which he is known.

Bob began his wrestling career in the fall of 1924 as a freshman at the Cresco High School. That winter he entered the state tournament in the 95 pound class and lost a decision in the second round. He entered the tournament with a mastery of only three holds.

During the following season he wrestled at 115 pounds and again as a sophomore was on the varsity wrestling team. The following year Bob was state champion in the 135 pound class. He spent an equally successful season in 1928 when he went undefeated in every dual meet in which the school competed. He

went over his weight in the state tournament and won third place.

In the summer of 1927 Bob attended C. M. T. C. camp at Fort Snelling, Minnesota, and won the welterweight wrestling crown. For the following two summers he again attended military camp and although he only weighed in as a welterweight he took the welter, middle and heavyweight crowns for both summers.

Between high school and college, Bob went west and spent a season working in the lumber camps of the west coast. Here he built up his physique and acquired the aggressiveness of the lumberjack through consistent training and rough and tumble bouts with his fellow woodsmen.

When Bob entered Iowa State in 1929, he immediately won the all-college 165- and 175-pound championships. He repeated this performance in the winter of 1930. In the fall and winter of 1931 Bob successfully defended his crown in the 175-pound class. As a sophomore he won second in the Big Six 175-pound class and the same placing in the National Intercollegiate matches at Providence, R. I.

In 1932, as captain of the Iowa State wrestling team, Bob won first place in the National Intercollegiate meet and at the same time winning in the final tryouts for the United States Olympic Team. In the Olympic meet Bob reached the finals and then fell victim to the unaccustomed rolling fall of foreign wrestling. His opponent was the Swedish Johannson who later won the 176-pound Olympic crown as well as the Greeco-Roman wrestling championship. Johannson had been the champion of Europe for three successive years.

This season Bob enters his last year of collegiate wrestling. We have no doubt that it will be a success. It will culminate a nine year career of which Bob (and Iowa State College) can well be proud. As a Forester and as a Wrestler we are proud to know Bob and have profited by our association with him.

FRIEND AND FOE

Dear is my friend—yet from my foe,
As from my friend comes good;
My friend shows what I *can* do, and my foe
hows what I *should.*

—*Schiller.*

Ames Foresters on the Athletic Field

SENIORS

ROBERT HESS. Bob's career is well known to us. Since he returned from the National Olympic Games last summer he has successfully defended his 175-pound mat crown in all Iowa State dual meets, the State meet, the Big Six meet, the mid-west A. A. U. tournament, and the National Intercollegiate mat meet held at Bethlehem, Pa. Bob is undoubtedly Iowa State's outstanding athlete.

LAWRENCE GIBSON. Red returned to the mat this year after an absence of one season due to a knee injury. He immediately returned to his old form and resumed his position as the "little guy" on the wrestling team. In the 118-pound class Red won every dual meet that Iowa State entered (as well as the State meet) but he had to be content with second place in the Big Six meet, the mid-west A. A. U. tournament, and the National Intercollegiate tournament. Red is recognized as one of the coolest and most methodic wrestlers ever to fight for Iowa State.

FRED GOTTSCHALK. Freddy is spending his third season as a pole vaulter on the track team. He consistently jumps around twelve feet and always can be depended upon to score in a meet. It has been traditional for a forester to hold this position on the track team but Freddy is still hunting a prep to fill his shoes.

JUNIORS

JACK BEYER. Jack has seen his second year of varsity football and has done a darn good job of holding down the center position against his much heavier opponents. Up until the Missouri game when Jack severely wrenched his ankle he scarcely missed a minute of play.

LYLE CHISHOLM. Chis won his second letter this year as a distance man on the track team. The two-mile is his specialty and he makes it in very good time. Ever since he was a prep Chis has had to compete with some of the best distance runners in the mid-west to maintain his place on the Iowa State team.

RUSSELL GETTY. For the past two years Getty has been a member of the R. O. T. C. Rifle team and Pistol team. He was the first man at Iowa State to receive an "I" sweater for this

type of activity. So far this year Getty has turned in high score in practically all of the intercollegiate meets.

MARSHALL THAYER. Marsh is another victim of circumstance. Although he is a wrestler of real ability his weight class is the same as that of Bob Hess. Likewise Marsh has had some real competition during his career. With Hess gone next year, Thayer ought to take over the 175-pound class.

SOPHOMORES

HOWARD HARLAN. Harlan played his first year of varsity football as a regular blocking halfback. His play is fast, clean and sure. With two more years to go, Harlan ought to make an outstanding back.

JULES RENAUD. Renaud was the only Prep of last year to win a numeral in track. His specialty is the javelin and he throws it well over the "160" mark. Next year he should be a varsity regular. Renaud also got his numeral in Prep basketball.

WALTER ZIMMERMAN. Zim won his numeral as an end on the Prep football squad last year. He is a fast heady player and should develop into a real man for varsity play. With two more years of experience, Zim will undoubtedly make the regular squad.

EVERETT CLOCKER. Clocker won his numeral with Zim on the Prep squad. As a tackle he played a great offensive game and constantly broke up varsity plays. Clocker's weight and cleverness stand him in good stead for the varsity.

JAMES PERRY. Perry won his numeral last year as a catcher on the Freshman baseball team. Perry is already in shape for this year's varsity squad and should see some action. With three years ahead of him, Perry will certainly see regular service on the varsity.

FRESHMEN

HANS MILIUS. Hans has earned for himself the name of a "Son-of-a-gun on wheels" as guard on this year's Prep football team. Hans also made the Prep team at the University of Wisconsin last year. We're anxious to see how he handles himself after two more years of play.

CLYDE HOOVER, KEITH CRANSTON, WYMAN MAULSBY. These three men won their wrestling numerals by successfully defending the 155-, 135- and 125-pound classes respectively on the Prep wrestling team. These men have the task of providing the Iowa State wrestling team of the next three years with its customary allotment of foresters. We only hope that they will carry on the work of Holding, Hess and Gibson.

FORESTRY CLUB NOTES

The spirit of Paul Bunyan still hovers above the foresters as is evidenced by the interest and participation in the regular meetings and special activities of the foresters. Much credit should be given to former president Henrikson for his efforts towards instilling the old forestry spirit amongst the boys.

The annual banquet and spring campfire were the big social functions of the spring quarter. Before the close of the quarter, election of officers for the first half of the 1932-33 school year was held. The members elected were: Einar L. Henrikson, president; Wendell Stone, vice-president; and Fred Gottschalk, secretary-treasurer. Fred Battell was elected junior representative to the Ag Council. The present staff was also selected during that meeting.

The first meeting of the fall quarter was held at Lynn Fuhrer Lodge and was entitled "Paul Bunyan Night." Such tales were told of Paul Bunyan that many a prep decided then and there that he was going to specialize in logging engineering.

To uphold the reputation of the foresters as having individualism and initiative and also to develop a further means of making acquaintances and friendship with other forestry schools, the Forestry Club Rifle Team was organized under the competent leadership of Kowski and Getty. Telegraphic meets will be held with any school in the country that cares to compete. To date, there has been one match, that with the University of Washington's team, in which Iowa State came out on top. Enthusiasm runs high in this new organization.

A forester's quartet, composed of E. Henrikson, E. Olson, R. Schmidt and Hal Coons was organized to sing at the Foresters' Hoedown. The quartet still exists, and the success of this group is partly evidenced by the fact that the boys were recently called upon to show the rest of the "Ags" what real spirit is by singing at the All-Ag Convocation.

On Feb. 3, Supervisor M. A. Mattoon of the Pisgah National Forest, favored the club with an illustrated lecture on "Recreation in the National Forests." This was but one of a series of five lectures delivered during his three-day stay here. About a month later, V. H. Nielsen of Denmark gave an interesting talk on his native land.

Election of club officers for the remainder of the 1933 school year was held on Feb. 16. The results of the election were: Jacob Jauch, president; Frank Kowski, vice-president; and Edwin Grau, secretary-treasurer.

RIFLE CLUB

The Ames Foresters' Rifle Club was organized at the beginning of the past winter quarter. The principal object of organization was to encourage and maintain the spirit of good fellowship of the Ames Foresters through periodic matches on the rifle range. Also, it was felt that a closer contact could be established between the Forestry Department of Iowa State and similar divisions of other Forestry schools by competing in scheduled telegraphic rifle matches. This program was initiated by a match with the Forestry College of the University of Washington held on March 1. We are proud to announce that the Ames Foresters won their initial match by the score of 1760 to 1733. The Iowa State men competing were Russell Getty, Harold Wiley, Amos Smelser, Earl Olson and Stanley Hurd. Other intercollegiate matches have been scheduled for the near future.

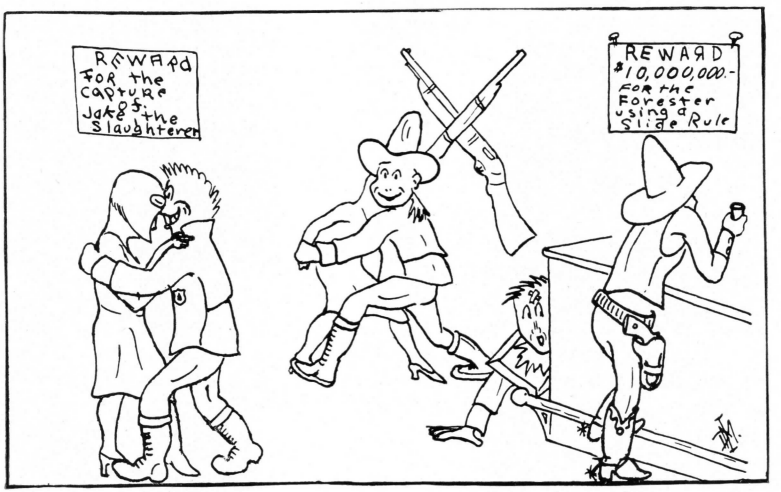
The club was organized with the following men composing the executive council: Frank Kowski, president; Walter Graves, vice-president; Harold Wiley, secretary; Howard Tustison, treasurer; and Russell Getty, coach. Getty, with his previous experience both as a coach and a national rifle team member, has proven himself invaluable to the team and organization.

At present the Rifle Club sponsors weekly matches at the Iowa State Armory and an intense interest is held in competition for the weekly high score. Once again the Ames Foresters have backed an activity with their full support.

On the evening of May 4, 1932, the foresters came tearing through one of the hardest rains of the season to attend the tenth annual Paul Bunyan banquet—and everyone had a dripping good time.

D. B. Demeritt billed as Head Sawyer, acted as toastmaster, and handled the job to perfection. Others of the "Sawmill Refuse" were, Prof. Larsen serving as Scaler, Jerry Dyksterhuis as Setter, Prof. Horning as Edger, Charlie Swanson as Trimmer, Harry Hinkley as Hogger and Prof. MacDonald as Grader to put the final stamp on the finished product.

Moose Kline was there with a fund of stories that would curl the ears of a government mule and Charlie Swanson was backing him up with bigger and better ones.



THE EIGHTH ANNUAL FORESTERS' HOEDOWN

Time: Thursday night, 7:30 p. m.
Place: Room 208 Ag. Hall.
Occasion: Regular Forestry Club meeting.

Junior: "Are we going to throw a dance this year?"
Senior: "Of course, we can't miss out on the 'Hoedown!' That's sumpin' no good forester misses! Mr. President, I move we have the 'Hoedown' on February 11th."
Junior: "Second the motion."

And so it was. The Melo Blues Orchestra from Des Moines satisfied the boys as to music and everyone had a good time—even the "vets" who were present.

Doubts as to the dance's success this year were dispelled when the last minute guests finally dug up their buck for admittance. The foresters were not present in their usual numbers, but the event turned out O. K. The outsiders paid tribute by having just as good a time as the foresters, thus proving to them that they had put the evening across. The beer and pretzels held out longer than usual—which satisfied those who condescended to climb off the water-wagon for the evening.

No hoedown is complete without a few songs and a little "Tomfoolery." A quartet was recruited from the foresters' midst and a couple numbers rendered. Then all the boys congre-

gated at the call of the verbose, leather-lunged (cousin) Kowski, master of ceremonies. The usual "Down Under the Hill" was sung, followed by a lusty rendition of "Alaweta." Hal Coons gave "Trees" later in the evening.

During an intermission between dances, the great Kowski separated the trouser-attired guests from their fair ladies. In the ensuing darkness (the lights being turned out), the couples made an attempt to reunite. Some fun! Oh well, Bro. Smit and a few others who were moon-eyed that night found out that there were other women at the dance, too.

It's rumored that some of the more pugnacious foresters regret that all has gone so smoothly these last few years. It has been feared that since the prohibition of the use of firearms at the dance that some unruly individual would forget and begin to celebrate. Maybe next year they'll have an excuse to throw somebody out.

SPRING CAMPFIRE — 1932

The Forestry Club held its spring campfire in North Woods on May 18. About 60 tickets covered the attendance.

The Juniors and Seniors challenged the Frosh and Sophs to a game of kittenball. "What-a-man" Hess twirled for the former and was so successfully batted all over the lot by the latter and keeping score wasn't even interesting.

Everyone who passed through the grub line—and who didn't—said it was the greatest feed the club ever had.

President Jensen acted as master of ceremonies. Ralph Schmidt and Harold Wiley produced some stirrin', old-time, cowboy music that would make any cowboy homesick. Following this, our German and Swede friends, "Axle" Grau and "Jake" Jacobsen sang some solos in their native tongue.

Songs, talks, memories of summer camps, and stories—and those stories (Prof. Larsen suddenly remembered he was needed at home)—so ended another great year for the Forestry Club.

We live in deeds, not in years: in thoughts, not in breaths:
In feelings, not in figures on a dial.
We should count time in heart throbs.
He most lives
Who thinks most, feels the noblest, acts the best.

FALL CAMPFIRE — 1932

It was five o'clock on a perfect spring day in October when a long line of Model-T Fords and automobiles released a lively bunch of Forestry students on the picnic grounds in North Woods. The occasion was the Forestry students' annual Fall campfire—a time when freshmen make acquaintance of the club and vice versa.

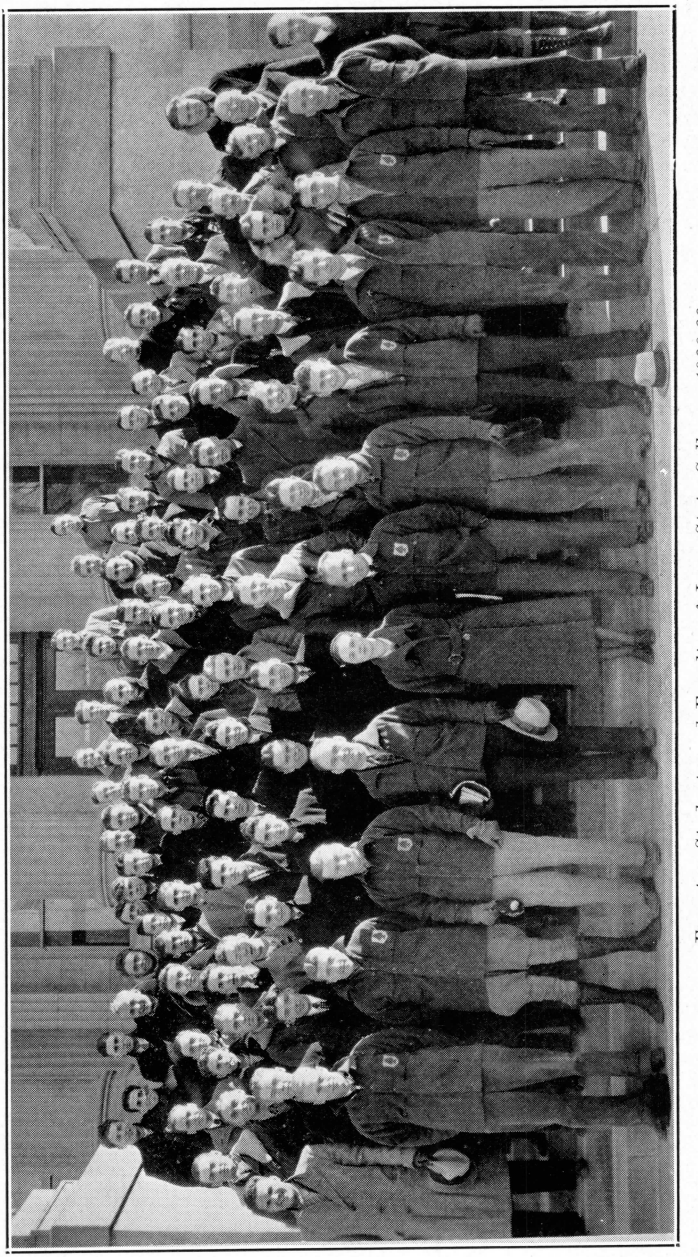
A kittenball game was soon in progress. Doc Sass, assisted by the law of averages, made an excellent umpire, for a very exciting game. The Frosh and Seniors played the two and three-year men. Holding the weak side of an 8 to 0 score at the end of the 4th inning, the Sophs and Juniors rallied in the final innings to win the game 17 to 12.

Gathered around an inviting campfire after an extremely satisfying feed, a happy bunch of foresters rent the air with songs of American and "Old Country" origin. President E. L. Henrikson presided in a very informal manner. Talks from the profs and grad students were in order, and notes and pleasant memories of summer camps were again rehearsed and compared with those of other camps.

Professors MacDonald, Horning, Larsen, and Demeritt were all properly introduced to the green ones. Dr. Aikman, Dr. Sass, and Dr. Loomis, notables from the Botany Department, spoke briefly on the merits of the forestry profession and in an unconvincing manner explained—to the freshman—that due to certain peculiar adverse circumstances arising in their young lives they had been unable to pursue this highly desirable and profitable mode of livelihood themselves.

Professor MacDonald reported on the student enrollement for the fall quarter. In the 9 departments of the Agriculture Division 150 students had enrolled and 40 of this number were in the Forestry Department.

More songs and some good stories that even Prof. Larsen could enjoy sent everyone homeward singing happily.



Forestry Students and Faculty of Iowa State College—1932-33

ROLL OF STUDENTS

GRADUATES

Anderson, C. E. ..... Geneva, Illinois
Fetzer, Karl D. ..... Danville, Pennsylvania
Giffen, Wm. D. ..... Des Moines, Iowa
McComb, Andrew Logan ..... Vandergrift, Pennsylvania
Kulp, John ..... Davenport, Iowa

SENIORS

Bailey, George ..... Red Lodge, Montana
Dannen, Dwight L. ..... St. Joseph, Missouri
Dunn, Milfred ..... Glenwood. Iowa
Curtis, Robert ..... Burlington, Iowa
Gibson, Lawrence M. ..... Harris, Iowa
Gottschalk, Fred ..... Davenport Iowa
Grau, Edwin Henry ..... St. Charles, Missouri
Graves, Walter L. ..... Washington, Iowa
Hart, Eugene D. ..... Ames, Iowa
Harvey, Ralph ..... Missouri Valley, Iowa
Henrikson, Einar Ludwig ..... Gary, Indiana
Hess, Robert Wm. ..... Creco, Iowa
Jauch, Jacob ..... Chicago, Illinois
Kowski, Frank Frederic ..... Ames, Iowa
Melvin, Clair R. ..... Parker, South Dakota
Olson, Earl Franklin ..... Souix City, Iowa
Osterman, Delbert Henry ..... Ocheyedan, Iowa
Ponomareff, Nicholas ..... Vladivostok, Russia
Steavenson, Hugh Alfred ..... Omaha, Nebraska
Stone, Wendell ..... Delhi, Iowa
Sack, Ivan ..... Sac City, Iowa

JUNIORS

Battell, Frederic Chapman ..... Ames, Iowa
Beyer, Jack ..... Des Moines, Iowa
Campbell, Noel Fredrick ..... Hawkeye, Iowa
Campbell, S. Leroy ..... Ames, Iowa
Chisholm, Lyle ..... Glidden, Wisconsin
Ferguson, Lewis Kirby ..... Algona, Iowa
Ferrin, J. Warren ..... Delta, Colorado
Getty, Russell Elias ..... Waterloo, Iowa
Harmening, Arthur M. ..... Waverly, Iowa
Hatch, Wm. Luther ..... Des Moines, Iowa
Hubbard, John Wheeler ..... Sioux City, Iowa
Hurd, E. Stanley ..... Ottumwa, Iowa
Lehman, Arthur Ferdinand ..... St. Charles, Missouri
Newville, Darold ..... Algona, Iowa
Nissen, Paul Frank ..... Cedar Rapids, Iowa
O'Neil, Gordon Keith ..... Ames, Iowa
Pettit, Franklin ..... Ames, Iowa
Richman, Hugo ..... Lowden, Iowa
Schroeder, Gerald Martin ..... Spirit Lake, Iowa
Schroeder, Vincent ..... Sioux City, Iowa
Schmidt, Ralph Arthur ..... Evanston, Illinois
Tustison, Howard ..... Yates Center, Kansas
Wiley, Harold ..... Center Point, Iowa

SOPHOMORES

Ball, Glenn ..... Wapello, Iowa
Brandford, Morse V. ..... Sioux Falls, South Dakota
Brinkman, Kenneth Allen ..... Des Moines, Iowa
Clocker, E. Everett Hale ..... Stanton, Nebraska
Duerr, Wm. Allen ..... New York City
Gates, Paul ..... Clearmont, Missouri
Harlan, Howard Francis ..... Stuart, Iowa
Hodges, Donald J. ..... Dubuque, Iowa
Holscher, Clark Edw. ..... Manchester, Iowa
Hutchinson, Robert Riley ..... Milwaukee, Wisconsin
Johnson, Glen Leroy ..... Stapleton, Nebraska
Johnson, Otho Meredith ..... Omaha, Nebraska
Julle, Wm. Leroy ..... Sanborn, Iowa
Lantzky, Albert Julian ..... Dubuque, Iowa
Libby, Paul Vawter ..... Oelwein, Iowa
McNutt, Verl ..... Goodell, Iowa
Mehlin, Albert Ford ..... Grinnell, Iowa
Morris, Dorsey Jackson ..... Des Moines, Iowa
Muller, Paul Max ..... Council Bluffs, Iowa
Overby, James Fredrick ..... Dubuque, Iowa
Owen, Richard L. ..... Ames, Iowa
Perry, James ..... Beacon, Iowa
Renaud, Jules Sinton ..... Keokuk, Iowa
Rottman, Wm. Russell ..... Detroit, Michigan
Sorenson, Roy ..... Elkhart, Iowa
Startzer, Roy ..... Des Moines, Iowa
Schaffer, Louis B. ..... Primghar, Iowa
Thayer, Marshall ..... Ida Grove, Iowa
Thomas, Gail M. ..... Logan, Iowa
Tribbett, Vance A. ..... Lake Park, Iowa
Zimmerman, Walter W. ..... Rock Island, Illinois

FRESHMEN

Baughman, Robert Wm. ..... Ames, Iowa
Brophy, John Charles ..... Lansing, Iowa
Cecil, Allison B. ..... Anita, Iowa
Cleghorn, Loral W. ..... Primghar, Iowa
Dannenburg, Walter Wm. ..... Storm Lake, Iowa
Deo, Claude ..... Stratford, Iowa
Dilworth, John Richard ..... Dubuque, Iowa
Efnor, Chalmer E. ..... Bondurant, Iowa
Ehrenhard, Clayton Coen ..... Fremont, Iowa
Felker, Ralph Herman ..... Vinton, Iowa
Grau, Martin Fred ..... St. Charles, Missouri
Haukom, Allen S. ..... Cuttler, Wisconsin
Heyer, Wynn Edwin ..... Sumner, Iowa
Hoover, Clyde Colburn ..... Marion, Iowa
Hufferd, Ivan Clyde ..... Coon Rapids, Iowa
Inglis, James Walker ..... Ames, Iowa
Jensen, Alvin ..... Elgin, Illinois
Kahl, Eldon ..... Nevada, Iowa
Kinnamon, Wm. Moe ..... Brooklyn, Iowa
Knight, Donald James ..... Muscatine, Iowa
Maas, Edw. Wm. ..... Lowden, Iowa
Marriott, Wesley Gorton ..... Ames, Iowa
Maulsby, Wyman Elvin ..... Dexter, Iowa

McElhinney, Gail David ..... Morning Sun, Iowa
McLintosh, T. F. ..... Old Grennwich, Connecticut
Mecklenburg, Norman A. ..... West Point, Iowa
Meyer, R. H. ..... Des Moines, Iowa
Miller, Homer ..... Ida Grove, Iowa
Milius, Hans Edw. ..... Port Edwards, Wisconsin
Olson, Oliver Leo ..... Webster City, Iowa
Phillips, Raymond Rex ..... Oskaloosa, Iowa
Rhody, John Patrick ..... Anamosa, Iowa
Roberts, Austin Benjamin ..... Des Moines, Iowa
Sauer, Kenneth Wayne ..... Hedrick, Iowa
Schlemmer, Nelson ..... Cincinnati, Ohio
Smelser, Amos ..... Oskaloosa, Iowa
Snyder, Richard Allen ..... Roland, Iowa
Stapleton, John Frahm ..... Denison, Iowa
Stevenson, Raymond L. ..... Waterloo, Iowa
Wiehn, Leonard John ..... Chicago, Illinois
Wilhelm, George Frost ..... Grundy Center, Iowa

PACK PRIZE ESSAY CONTEST

Charles Lathrop Pack, president of the American Tree Association set aside a fund of two thousand dollars in 1925 for the Forestry Department of Iowa State College. This fund is invested so as to produce a permanent annual income in the form of prize money to students of forestry. The objects of the contest are to bring about a greater effectiveness in writing and speaking English, and the creation among the citizens of Iowa especially a better understanding of the needs and possiblities of forest conservation.

The freshmen and sophomores compete in one class, while the juniors, seniors and graduate students compete in the other class. Equal first and second prizes for the two groups are awarded. The interest and competition in this contest has become keener than ever.

Winners for 1932 were as follows: Freshmen and sophomores —Russell E. Getty, first; Paul Nissen, second. Juniors, seniors and graduate students—Harry S. Hinckley and Jim McGlade tied for first.

The Summer Camp of 1932

EDWARD H. VANDENOEVER, '34

THE lazy populace of the western village, drowsing on the wide veranda of Brewster's General Store on a warm June day, aroused themselves sufficiently from their dormancy to take note of another Iowa-license-bearing car drawing near from the forested outskirts of the settlement. They stirred perceptibly and, through slitted eyes, took stock of "some more of them eastern college foresters, come to our parts for their summer's vacation." Whether or no these first impressions were suited or acceptable, such was in part the scene as the 1932 participants of the Summer Forestry Camp swept down from the hills into Burney, California, and plunged into the wilds of the Shasta forest beyond.

After fifteen miles of secondary road in the midst of a lofty stand of mixed species, the travel-weary foresters rounded a bend in the road and came face to face with the setting for their summer's work—beautiful Lake Britton. Man-made though it was, it possessed, nevertheless, every characteristic of the indescribable natural mountain gem and in this respect was admirably fitted to represent the "front yard" of the camp site. From the bluffs above, where the tents were pitched, the lake was seen to stretch up the valley of the Pit River, to be lost from sight as it turned, seemingly, into the wooded slopes which bordered it.

A hasty initial scrutiny showed that a camp site had been chosen which possessed many significant advantages over those of previous years; namely, several large buildings, all built of corrugated sheet metal, and a stock of general warehouse supplies that rewarded every form of demand and every conceivable idea or tenacious search. Add to that the convenience of running water, and it can be readily seen that the '32 foresters did not exactly have to live the "he-man lumberjack" type of existence. As some of the boys ultimately decided, there was really no excuse whatever for appearing at breakfast without a washed face and clean hands.

Since the call of hunger is the most insistent and the most demanding of the fundamental proprieties of an opening camp, one of the first things accomplished was the stocking of our large and sumptuous pantry and the furnishing of our mess room with sufficient care to accommodate the daily invasion of twenty ravenous and stampeding foresters. Mrs. Kirkpatrick, our cook and camp mother, took immediate care of this end of the camp and served admirably in that capacity. June 20 had been

(Continued on page 98)

ALUMNI

We are PROUD of the fine record our Alumni are making. The Alumni are largely responsible for the prestige this Department enjoys, for upon their record of accomplishments rests the success of the Forestry Department.

ALUMNI NEWS BRIEFS

Shirley W. Allen, '09, M. F. '29, professor of forestry at the University of Michigan, plans to continue his teaching and extension work in Michigan. He states that he makes at least one visit a year to a major forest region to keep up to date on protection and administration.

Anderson, '32, is connected with the Nysted Peoples' College of Dannenberg, Nebraska.

W. M. Beveridge, '29, left the Lincoln National Forest in April, 1932, and is now working on Ponderosa Pine Reproduction at the Southwestern Forest and Range Experiment Station.

Fred E. Boeckh, '28, reports that he is still with the Burlington Basket Company, and that he is kept busy. He is still a football fan and says, "Beat Iowa next fall". Will that be a game!

Luther Burkett, '30, says he is now serving as chief of party of a type map crew on the Trinity National Forest.

N. K. Clemmensen, '26, is organizing protection on the Malvern District of the Southern Kraft Corporation, Arkansas, as fire warden in charge. Hs is also making a management plan for this area.

P. M. Garrison, Ex., answering our question as to future plans says, "Hang on with teeth and toenails, and work like H———!" From other sources, we hear that he is "Doing fine and running the show" for the Great Southern Lumber Company, in Bogalusa, Louisiana.

Jerry Griswold, '31, dropped in and is still the same old "Gisborne." Jerry is located on the Ouatchita National Forest, Hot Springs, Arkansas.

Arthur Holding, '31, reports that he is still on the Warm Springs Indian Reservation in Oregon. His work is administrative, dealing mostly with fire protection and road building. Holding has been paddling about on the sea of matrimony for about a year now—since February, 1932.

John Hough, '31, is an assistant ranger on the Columbia National Forest. John dropped in the first of the year to say hello to the gang, and left for the open spaces again.

Dave Ilch, '31, came back from California by plane to spend Christmas at home, and dropped in to see the gang on the first. Dave is still with the Experiment Station at Berkely, California.

Harrod Newland, '31, is assistant resident manager of the Wayne County Operation of the Wood Mosaic Co. of Monticello, Ky. He has been promoted to this position since being employed in March, 1932. Recently he has been making a one hundred per cent cruise of a tract reputed to contain the finest virgin hardwood stand in the country. This area in Wayne County, Ky., has oak and poplar up to seven feet d. b. h. He sends his regards to the gang.

H. H. Plagge, '16, who is with the Iowa Agricultural Experiment Station here at Ames, has been working to get a new degree. Last August he tacked a "Ph. D." after his name. His work is in horticulture.

Edwin Pohle, '22, reports that he is setting up a system of property identification on all state property and equipment which is to be tied in with accounting control and periodic audits. He is serving as State Property Auditor, State of California.

Harold F. Scholz, '29, will be stationed at the Northern Great Plains branch of the Lake States Forest Experiment Station. The work of this branch is primarily that of afforestation in the sandhills of McHenry County, North Dakota.

Clyde T. Smith, '31, reports that he is examining lands that are entered under the forest crop laws, for the state of Wisconsin.

C. R. Towne, '25, prophecies a big opening for a bunch of new foresters one of these days in grazing work. We hope he's right. He is Assistant Supervisor on the Routt National Forest.

F. B. Trenk, '23, boasts a new daughter who arrived last November. That makes three now, doesn't it, Fred? These Wisconsin foresters don't have a chance to get lonesome it seems. Fred reports meeting seven Iowa State men recently. He is still in connection with the Univrsity.

R. Dean Holtz, '30, has recently been transferred from the Klamath Indian Reservation, regon, to the Forestry Branch of the United States Indian Service at Zuni, New Mexico. In his present capacity he is in charge of all forestry activities on the reservation and is slowly working out a grazing management plan. Holtz writes: "Incidentally I build roads and bridges and operate the agency sawmill, and at odd times, I repair telephones and do my own office work.

"This agency is 42 miles southwest of Gallup, New Mexico, and only reached by dirt roads."

ANSWERS TO WOOD YOU BELIEVE IT?

1. spruce
2. filbert
3. box elder
4. hazel
5. beech
6. bay
7. plane
8. pine
9. bass wood
10. yew
11. ash
12. gum
13. cypress
14. sycamore
15. dog wood
16. fir
17. cedar
18. peach
19. pawpaw
20. holly
21. sumach
22. crab
23. willow
24. cotton wood
25. witch hazel
26. locust
27. red wood
28. dog wood
29. possum wood
30. haw, haw
31. pear
32. hazel
33. filbert
34. tulips
35. olive
36. filbert
37. balsam
38. oak

NOT IN VAIN

If I can stop one heart from breaking,
I shall not live in vain.
If I can ease one life the aching,
Or cool one pain,
Or help one fainting robin
Unto his nest again,
I shall not live in vain.

—Emily Dickinson.

ALUMNI DIRECTORY

1896

Sherman, E. A.—Associate chief of the United States Forest Service. He received a doctor of science degree from Iowa State College in 1928. Address: 4103 Military Road, Washington, D. C.

1903

Secor, A. J.—County agricultural agent for Van Buren County, Iowa. Address: Keosauqua, Iowa.

1904

Merritt, M. L.—Assistant Regional Forester of Alaska Region with headquarters at Juneau, Alaska.

1907

Balthis, R. F.—Assistant state forester, A. & M. College, College Station, Texas.

Kupfer, Carl A.—Sales engineer for the North Coast Dry Kiln Co., 372 Bryce Ave., Portland, Oregon.

1908

Baxter, W. F.—Farming at Galva, Iowa.

Haeffner, H. E.—U. S. F. S., Santiam National Forest, Albany, Oregon.

1909

Allen, Shirley W.—Professor of Forestry at University of Michigan. Address: School of Forestry and Conservation, Ann Arbor, Mich.

McCullough, Thomas E.—District agent for the Northwestern Mutual Life Insurance Co., Flagstaff, Arizona.

1911

Barrett, Robert L.—Horticulturist for the Kansas City Southern Railroad, 323 S. Ripley St., Neosho, Mo.

Freeman, F. G.—In the fruit business at Santa Ana, Calif.

Hoffman, A. F. C.—Supervisor of the Montezuma National Forest, Mancos. Colo.

Reynoldson, L. A.—Economist with the Bureau of Agricultural Economics, U. S. Department of Agriculture, Washington, D. C.

Smith, P. T.—County agent at Redfield, S. D.

Whitham, J. C.—Supervisor of the Beaverhead National Forest, Dillon, Montana.

1912

Lessel, L. R.—Assistant supervisor of the Gila National Forest, Silver City, New Mexico.

O'Bannion, R. A.—County agent at Park Rapids, Minn.

Olmstead, R. A.—In charge of a large fruit ranch at Dundee, Ore.

Richmond, H. H.—Owner of a logging and mercantile business, Cass Lake, Minn.

Smith, W. A.—Whittier State School, Whittier, Calif.

Truax, T. A.—Investigative work at the U. S. Forest Products Laboratory, Madison, Wis.

1913

Baxter, L. J.—Farming at Galva, Iowa.

Clark, H. B.—President and Manager of the Sioux-White Motor Co., Sioux City, Iowa.

Hensel, R. L.—Paint contractor, San Antonio, Texas.

Ringheim, H. I.—Monarch Lumber Co., Elrose, Saskatchewan, Canada.

Steffen, E. H.—Head of the Forestry Department, Washington State College, Pullman, Wash.

Watts, L. G.—Director of the Northern Rocky Mountain Forest Experiment Station, Missoula, Montana.

1914

Hassel, W. C.—Superintendent of Schools at Salem, Iowa.

Hayes, R. W.—Professor of Forestry at North Carolina State College, Raleigh, N. C.

Nagel, W. M.—Forest Supervisor of the Blackfeet National Forest, Kalispel, Montana.

Schreck, R. G.—Secretary-Treasurer Bay Straits League, Northeastern Development Co., Bay City, Mich.

Sterett, J. C.—Real estate dealer, Villa Park, Ill.

Von Boskirk, S. S.—U. S. F. S., Ephriam, Utah.

Wolfe, E. T.—Operating a resort at Pend Oreille Lake, Sandpoint, Idaho.

Wolven, R. M.—Salesman for the Standard Oil Co., Santa Ana ,Calif.

1915

Bode, I. T.—Iowa State Fish and Game Warden, Des Moines, Iowa.

Hansel, H. E.—County engineer and consulting drainage engineer at Bloomfield, Iowa.

Harley, Wm. R.—Assistant manager, J. C. Baldridge Lumber Co., 1415 West New York Ave., Albuquerque, New Mexico.

1916

Cassidy, H. O.—U. S. F. S., 304 Agr. Bldg., University of Arizona, Tucson, Arizona.

Cornell, Harvey H.—Landscape architect and vice-president of the Morell Nichols, Inc., 1200 2nd Ave., Minneapolis, Minn.

Geisler, Max—Advertising manager of the Harry Alter Co., 5204 Sheridan Road, Chicago, Ill.

McCarthy, C. C.—Assistant city engineer, Ames, Iowa.

Plagge, H. H.—With the Iowa Agricultural Experiment Station, 2215 Storm St., Ames, Iowa.

Plagge, N. O.—Owner of the Plagge Home Furnishing Co., 104 E. Main St., Barrington, Ill.

Rumbaugh, W. R.—Farming at Collins, Iowa.

Stokes, R. R.—Woods foreman of the Rutledge Timber Co., Couer d' Alene, Idaho.

1917

Hartman, G. B.—Plant superintendent, Creosoting Division, Long Bell Lumber Co., 311 Broad St., De Ridder, Louisiana.

Quint, J. H.—Dentist at Glendale, Calif.

Veach, C. H.—Teaching in North Dakota. Home: Correctionville, Iowa.

1918

Davis, E. M.—Wood technologist with the U. S. Forest Products Laboratory, Madison, Wis.

Hadlock, F. D.—In charge of dry kiln operations with the Western Electric Co., 506 Central Ave., Cranford, New Jersey.

Rehmann, T. W.—Engaged in real estate business 4000 Edwards Ave., Des Moines, Iowa.

1919

Poshusta, D. C.—At present at 222 2nd Ave., S. W., Mason City, Iowa.

1920

Deming, Milo H.—With Great Basin Experiment Station, Ephraim, Utah.

Fletcher, R. A.—With the Foreman's Fund Insurance Co., 10 Murdock Court, Oakland, Calif.

Hoyer, V. B.—Superintendent of schools, Battle Creek, Iowa.

Moorhead, John W.—Metropolitan Life Co., 3903 Solano Ave., Richmond, Calif.

Morrell, F. W.—(Professional degree.) Assistant forester in charge of Public Relations, U. S. F. S., Washington, D. C.

Wall, Lloyd A.—Assistant range examiner, Coconino National Forest, Flagstaff, Arizona.

1921

Avery, N. C.—U. S. F. S., Black Hills, South Dakota.

Cormany, C. P.—Vice-President and Buyer for the Frank Porter Lumber Co., 1814 N. Central Park Ave., Chicago, Ill.

Fiske, V. C.—Teaching botany at Utah University, Salt Lake City, Utah.

Helm, H. J.—With the Tilden Manufacturing Co., Ames, Iowa.

Ling, Wen Ming—Principal of the Provincial School of Agriculture at North Lake, Fukien, China.

Patrick, O. K.—In charge of creosoting department for the Long Bell Lumber Co., De Ridder, La.

1922

Eggers, W. C.—With the sales department of a branch of the Long Bell Lumber Co.

Gennell, Robert E.—Assistant superintendent, District No. 3, Prudential Life Insurance Co., 1107 Meyer-Kiser Bldg., Indianapolis, Ind.

Moravets, F. L.—Pacific Northwest Experiment Station, on Forest Resource Survey, 514 Lewis Bldg., Portland, Ore.

Morris, R. D.—Assistant range examiner, Lincoln National Forest, Box 193, Alamagordo, New Mexico.

Pohle, E. W.—State Property Auditor, Department of Finance, California.

1923

Dunn, Paul M.—Extension Forester and Associate Professor of Forestry at the Forestry School at Logan, Utah.

Prout, Clarence—With the Minnesota Forest Service, Old Capitol Bldg., St. Paul, Minn.

Trenk, Fred B.—Extension Forester, Ag. Engineering Bldg., University of Wisconsin, Madison, Wis.

Watkins, E. W.—With the Los Angeles Road Department, 20012 Chase St., Owensmouth, Calif.

1924

Martin, C. W.—In the nursery business, Old Lynne, Conn.

Miller, A. F.—Assistant supervisor, Chippewa National Forest, Cass Lake, Minn.

Rutter, Frank—With the Frank Porter Lumber Co., Chicago, Ill.

1925

Correll, Lynne—Ranger on the San Bernardino National Forest, Sky Forest, Calif.

Durrell, Glen R.—District forester in charge of the Southeastern Forest Protective Unit, Oklahoma Forest Service, Box 153, Broken Bow, Okla.

Howell, Joseph—Supervisor on the Hopi Indian Reservation, Hotevilla, Arizona.

Lough, W. E.—Assistant manager of the Sun Lumber Co., 818 Meta St., Oxnard, Calif.

Nelson, De Witt—Assistant supervisor of the Shasta National Forest, Mt. Shasta, Calif., on special fire investigation work.

Towne, Chas. A.—Assistant forest supervisor on the Routt National Forest, Steamboat Springs, Colo.

1926

Barnoske, Francis M.—With the Wheeler Lumber, Bridge and Supply Co., Box 391, Hastings, Nebraska.

Clemmensen, N. K.—Chief warden for the Southern Kraft Co., 623 Pine Bluff St., Malvern, Arkansas.

Downey, E. J.—Woods superintendent of the Long Bell Lumber Co., Many, La.

Farnsworth, C. E.—Assistant Professor teaching forestry subjects and surveying at New York State College of Forestry at Syracuse University.

Greef, C. H.—Salesman for the Curtis Co., 338 18th N. W. Canton, Ohio.

Harrison, C. L.—Forest ranger on the Spearfish District of the Black Hills National Forest, Savoy, South Dakota.

Hasek, Miljov—With the S. S. Kresge Co., 3235 First St., Beloit, Wis.

Hogan, Jack—Junior forester on the Colville National Forest, Republic, Wash.

Kouba, Theodore—White Pine Blister Rust Leader, Wisconsin Conservation Commission, Madison, Wis.

MacIntyre, G. S.—Assistant State Forester of Michigan, Lansing, Mich.

McKennan, R. B.—Assistant Supervisor of the Wisconsin National Forest, Park Falls, Wis.

Meyer, Russell E.—Chicago Mill and Lumber Co., 111 W. Washington St., Chicago, Ill.

Mollison, Allen—Forest supervisor, Indian Service, Red Lake, Minn.

Pickford, G. D.—Assistant silviculturist with the Great Basin Experiment Station, Hotel Bigalow, Ogden, Utah.

Svendby, Clarence—In charge of Clark McNary nursery at State College of Washington, Pullman, Wash.

Tharp, Orlo E.—Forest Resource Survey, Mt. Hood National Forest, Portland, Oregon.

West, Wm.—District ranger, Idaho National Forest, Roseberry, Idaho.

1927

Fullerton, Neil—Junior forester, in charge of blister rust control on St. Joe National Forest.

Gibbs, J. A.—Extension forester and instructor in forestry in the Connecticut Agricultural College, Storrs, Conn.

Hill, Edwin—Salesman for the Story City Butter Tub Co., Algona, Iowa.

Hutchings, Gordson C.—Owns and operates rainbow trout farm, Route 1, Henderson, Colo.

Jackson, Marion—Assistant City Manager, 1405 Clark St., Iron River, Mich.

Latham, O. L.—Instructor at the New York State Ranger School, Wanakena, New York. (On leave of absence to study for a M. F. degree at Yale University, 534 Elm St., New Haven, Conn.)

McKinley, Ray—Ranger, Harney National Forest, Keystone, S. D.

McClaren, Cecil—Chief forester for the Tomahawk Kraft Paper Co., Tomahawk, Wis.

Nagle, John—Clearwater Lumber Co., Lewiston, Idaho.

Rindt, Charles—Forester for the Nekoosa-Edwards Paper Co., Butternut, Wis.

Schipull, Walter L.—Technical assistant, Montezuma Ntional Forest, Mancos, Colo.

Turney, George—Ranger, Wyoming National Forest, Bedford, Wyo.

Vinton, Everett—With Department of Conservation, Milwaukee, Wis.

Wiggins, A. V.—Taking graduate work at Yale University and Beverly Divinity, 12 Prospect Place, New Haven, Conn.

1928

Armstrong, George—District ranger, Angles National Forest, Sierra Madre, Calif.

Ball, Donald R.—Ranger in charge of Moquah Purchase Unit in Wisconsin. Address: U. S. F. S., Washburn, Wis.

Battell, Sam—U. S. F. S., Eagle River, Wis.

Boeckh, F. E.—Forester and timber superintendent, Burlington Timber and Land Co., Burlington, Iowa.

Iverson, Ray C.—Senior ranger in charge of Purchase Unit, Eagle River, Wis.

Kahler, L. H.—Located at Storm Lake, Iowa.

Kreager, Paul—Bureau of Biological Survey, Washington, D. C.

Lau, Victor—Pulp and paper tester for the Crown Willamette Co., Care C. W. Inn, Camos, Wash.

Lepley, Wm.—Teaching psychology at Penn State.

Lester, Orville F.—Farming at Indianola, Iowa.

Lundberg, R. O.—Edward Hines Western Pine Co., Box 146, Burns, Ore.

McGlade, Jim—Ames, Iowa.

Meginnis, H. G.—Junior forester, Southern Experiment Station, 348 Baronne St., New Orleans, La.

Peters, George—Salesman for a Chicago lumber company. Address: Hyde Park Y. M. C. A., 1400 East 53rd Street, Chicago, Ill.

Ratliff, Mark—U. S. F. S., Laramie, Wyo.

Rotty, Roland—Forest ranger on the Nebraska National Forest, Halsey, Nebr.

Sonner, Orville—Farming at Hamburg, Iowa.

Sullivan, Walter F.—Statistician for the Associated Indemnity Corp., 351 Turk St., San Fransisco, Calif.

Wicks, Walter—Electrical Research Products, Inc., 6th St. and Hennepin Ave., Minneapolis, Minn.

1929

Battey, Lawrence—Located at Shelby, Iowa.

Beveridge, W. M.—With the Southwestern Forest and Range Experiment Station, 304 Agr. Bldg., University of Arizona, Tucson, Ariz.

Chapman, A. G.—Teaching botany at Ohio State University, Columbus, Ohio.

Christensen, Irving L.— (M. S., 1931). Home: Eagle Grove, Iowa.

Hanson, Nat B.—Junior forester with the Indian Service, Rosebud, S. D.

Holding, Art—Forest Ranger with the Indian Service, Warm Springs, Ore.

Howell, E. M.—Forester with the Pacific Northwest Experiment Station, Portland, Ore.

Kulp, J. W.—Taking graduate work at Iowa State College.

McCutcheon, Allen—Ranger on the Uncompahgre National Forest, Ute, Colo.

Morey, H. F.—Northeast Forest Experiment Station, Silvical Research, 335 Prospect St., New Haven, Conn.

Olson, Roy W.—Chicago Mill and Lumber Co., 111 W. Washington St., Chicago, Ill.

Scholtz, H. F.—Lake States Experiment Station, University Farm, St. Paul, Minn.

1930

Burkett, Luther B.—Junior Forester on Trinity National Forest, Weaverville, Calif.

DeBower, Richard—Cook County Reserve, Chicago, Ill.

Diemer, Jack—Forest Fire Research, Lake States Experiment Station, St. Paul, Minn.

Hawkins, V. T.—Bank clerk, 2010 Robinwood, St., Toledo, Ohio.

Heacox, Edwin—Purchasing Department of the Weyerhauser Lumber Co., care Longview Hotel, Longview, Wash.

Holtz, Dean—Forest ranger, Indian Service, Zuni, New Mexico.

Klug, Wm., Jr.—Plant chemist, National Lumber and Creosote Co., Kansas City, Mo.

Lubberts, D.—Home: Parkersburg, Iowa.

Marriage, Lester—Temporarily at Ames, Iowa.

Mickey, M. H.—Canada Creosoting Co., 11716 85th St., Edmonton, Alberta, Canada.

Millard, Ned—Junior forester, Wyoming Natoinal Forest, Daniel, Wyo.

Nichols, Floyd A.—Home: R. R. 3, Montrose, Colo.

Pecaro, George—Forester and engineer for the United States Gypsum Co., 407 Main St., Greenville, Miss.

Runkel, Sylvan T.—Temporary Extension Forester at Iowa State College, Ames, Iowa.

Smith, Maynard J.—Okoboji, Iowa.

Soderberg, Gordon—Queal Lumber Co., Des Moines, Iowa.

Stoeckler, Joe—Junior forester, Lake States Experiment Station, St. Paul, Minn.

Stoughton, Margaret (Mrs. Abell)—Junior forester, Appalachian Forest Experiment Station, 223 Federal Bldg., Ashville, N. C.

Wambold, Floyd D.—Greenfield, Iowa.

1931

Benson, Ellsworth—Home: Randolph, Nebraska.

Boeger, H.—Working on a fox farm; care G. H. Jensen, R. R. 3, Box 408, Tacoma, Wash.

Brands, Andrew—Tree trimming in Chicago. Home: 4615 Center Parkway, Louisville, Ky.

Chase, Clarence D.—Home: 1614 4th St. S., Minneapolis, Minn.

Chipman, Russell—Temporarily at home in Burt, Iowa.

Dodge, A. F.—Graduate work in botany at Iowa State College.

Garver, Raymond D.—Senior forester engaged in Forest Products and Industrial forestry, U. S. F. S., Forest Products Laboratory, Madison, Wis.

Griswold, Gerald—Assistant ranger, U. S. F. S., Hot Springs, Ark.

Hough, John P.—Assistant ranger, U. S. F. S., Columbia National Forest, Gooler, Wash.

Ilich, Dave M.—California Forest Experiment Station, U. of California, 332 Giannini Hall, Berkeley, Calif.

Kruse, Gerald—Home: Monona, Iowa.

McCormick, Leighton—Home: Bedford, Iowa.

Moessner, Karl—Home: 300 Blackhawk Road, Waterloo, Iowa.

Moser, Harold C.—Junior Forester, Lake States Forest Experiment Station, St. Paul, Minn.

Newland, Harrod—With the Wood Mosaic Co., Louisville, Ky.

Priester, F. T.—Working in a bank at Avoca, Iowa.

Roche, Lloyd—Home: Alma, Iowa.

Thielking, Karl—Fellowship at the U. of California, Berkeley, Calif.

Unser, George—Tree surgery, Henry Vaughn-Eames, Newark, N. J.

Ziebarth, Kurt—Fellowship at Penn State College, Pennsylvania.

Zimmerman, Elliott W.—Home: 2350 Grand Ave., Davenport, Iowa.

Smith, Clyde—With Wisconsin Conservation Dept., Milwaukee, Wis.

1932

Andersen, Helmer—Temporarily at home, 1333 Boyd Ave., Des Moines, Iowa.

Coons, Harold S.—Temporarily at home, Ames, Iowa.

Dyksterhuis, Edsko J.—Botanist, 220 Broad St., Oshkosh, Wis.

Giffen, William D.—Taking graduate work at Iowa State College.

Harmon, Wendell—Temporarily at home, Waverly, Iowa.

Hinkley, Harry—Felowship at University of California, Berkeley, Calif.

Intermill, Webster—Taking graduate work at Iowa State College.

Kline, George—Teaching. Home: Lone Tree, Iowa.

Potter, Ewart D.—Assistant Ranger, Ronald, Washington.

Schafer, O. Arthur—Temporarily at home, Farragut, Iowa.

Suder, Robert G.—At home, Chicago, Ill.

Swanson, Charles M.—Temporarily at home, 1619 23d St., Sioux City, Iowa.

EX-STUDENTS

Garrison, P. M.—Forester with the Great Southern Lumber Co., Bogalusa, La.

Horton, E. V.—Assistant regional forester in charge of lands, Region 6, Portland, Ore.

Isch, D. H.—Senior forest ranger, Park Falls, Wis.

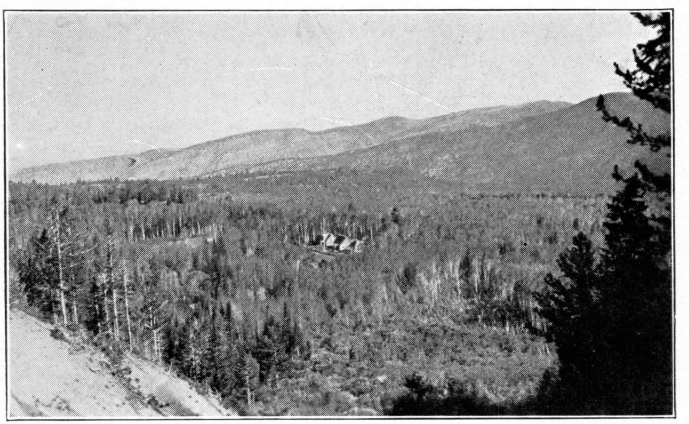
Palmer, H. S.—On the Sitgreaves National Forest, Stamlord, Ariz.

Petheram, H. E.—Technical assistant on the Pike National Forest, Colorado Springs, Colo.

Poch, F. J.—Technical assistant on the San Isabel National Forest, Pueblo, Colo.

Pume, Alfred—Oconto Lumber Co., headquarters camp, Townsend, Wis.

Yeager, W. R.—Inspection Engineer Western Electric Co., Inc., 635 Leet St., S. W., Atlanta, Georgia.



"Like two cathedral towers these stately pines
Uplift their fretted summits tipped with cones;
The arch beneath them is not built with stones.
Not Art but Nature traced these lovely lines,
And carved this graceful arabesque of vines;
No organ but the wind here sighs and moans,
No sepulcher conceals a martyr's bones,
No marble bishop on his tomb reclines.
Enter! The pavement carpeted with leaves,
Gives back a softened echo to thy tread!
Listen! The choir is singing; all the birds,
In leafy galleries beneath the eaves,
Are singing! Listen, ere the sound be fled,
And learn there may be worship without words."

—*Longfellow.*

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The Forestry Club
extends its thanks
to the firms that
advertise in the
"Ames Forester"
for those firms make
our Annual possible

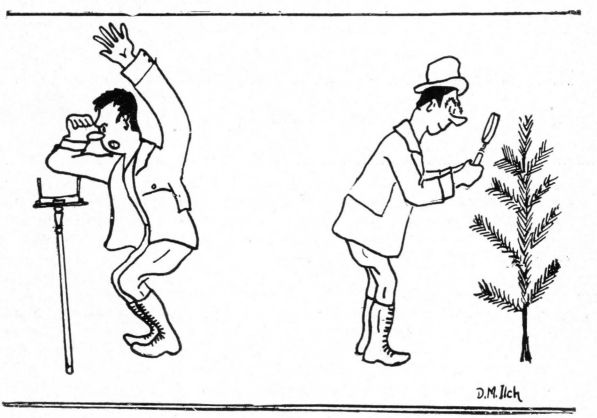
Mention

"The Ames Forester"

(Continued from page 84)

set as the official opening day of camp and, with approximately eighty percent of our total number on hand for the initial handout, the boys trooped in and had their first meal together under alien skies. The days following brought preparation of the camp site and erection of the tents and various activities which kept us close to "home." One of those things that had the factor of domesticity predominating its atmosphere was the incidental "K. P." duties of which we all were privileged to partake in abundance.

Our first taste of the "tall yellow pine" came with the experience that all pines weren't necessarily tall. Prof. Demeritt sent us out into the woods equipped with a Forest Service compass with orders to lay out a square plot by sighting and pacing. Before any of us had accomplished very much, we had developed a new appreciation and, perhaps, a new respect for the "baby" pines and fire, and had come to the common agreement that Prof. had picked a very "educational" stand on which to begin work. The gist of the matter was that nearly all of our compass



lines ran through reproduction so thick that being able to "shoot ahead" for twenty-five feet was a revelation to our progress. One of the boys later expressed it back at camp when he described it as "stuff that was so thick that the rabbits got on their hands and knees to go downhill." As for going uphill, that was out of the question altogether.

Mensuration studies on a larger scale followed, ending with the perusal of an entire section of "the wildest and most beautiful country on the Shasta." Then pocket and sheath knives came out and Biltmore sticks were the result. It seems the boys didn't mind carrying them a bit, especially following the ludicrous incident in which they were referred to as "those cute

(Continued from page 96)

walking sticks.'' As the end of the day drew near they were, no doubt, used somewhat in that capacity, and perhaps it was due to the Prof.'s foresight that they were metal shod so as to more fittingly answer this purpose. In the meantime, the ''Skipper'' did not give us a chance to forget silvics and silviculture, taking us on several long hikes throughout the surrounding terraine, accompanying his lectures with specimens and illustrations from the forest to more firmly establish them as a definite part of forestry. For the study of logging principles, the best opportunity came from Whitehorse logging camp, where western yellow pine was being cut for the mill at McCloud. We found a ''cat'' tractor operation, running at about half capacity due to the slow motion of the finished product, but still cutting close to 250,000 board feet per day. The most appreciative of the moments at Whitehorse, we all agreed, came with the hearing of the ''come and get it'' call. With sumptuously laden tables piled three-deep with every conceivable form of tempting ''eatable,'' it is little wonder some of us sought our bags with promiscuous pangs making evident protest from the region of the solar-plexus.

The lake proved to be an excellent place to shake the dust of the day's work. The water was clear, pure, and of a deep blue color and, although rather cool the first few weeks, it seemed to develop that temperature which was just right for an invigorating swim. Because it was a canyon bed, the lake bottom was very precipitous and, at a point directly opposite the dam, was said to be one hundred and fifty feet in depth. The shore line did not offer many possibilities in the way of a beach, so that idea was discarded, and ''the gang'' got together and constructed a floating pier of yellow pine logs and mounted a tower and diving board. The home-made apparatus was rather serviceable and appreciated by the fact that much of the time it was so crowded with ''natives'' that it was practically impossible to accommodate any of our own camp. Excellent bass fishing made the lake a paradise, and the numerous streams gave the persistent angler his reward in beautiful trout. Not only persistence but determination was evident in the camp circle as the mess hall was repeatedly filled with the aroma of frying fish.

Not far from the camp location was one of the beauty spots of the state, the McArthur Memorial State Park, enclosing the falls of the Burney River. The source of this stream is in the Lassen National Forest, and the water from Burney Falls is known far and wide as having no superior in purity and wholesomeness.

At periodic intervals the regularity of camp routine was rudely broken into by the district fire guard. Roaring down from his station on Bird Flat, he would invariably stop at the

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camp for volunteers and just as invariably half of the would-be fighters would have to be given a disappointing negation. Our situation, however, was undoubtedly fortunate for all concerned; certainly for the Forest Service in that particular district, and perhaps even for the luckless fire-patrollers who had to sleep two in a sleeping bag or forsake the idea of sleep. They chose the former even over the tirades of their comrades. And so we all received a taste of the flaming menace and were all the more fire-conscious for having done so.

A temporary camp located at Dickson Flats, under the tutelage of Prof. Larsen, gave us the rudiments of camp-cookery in combination with an intensive silvicultural study, both in mixed and unmixed species. As the main camp was located in mature forest cover with western yellow pine predominating, the Flats furnished delightfully contrasting material in the pure stands of lodgepole there. Incidentally, we all received ample opportunity for slinging the hash and burning the beans and, most extraordinary, lived to tell the story. Some of the boys unearthed some rare and novel ideas in the way of recipes, and even the "Skipper" was forced to admit their prowess.

In the vicinity of Screwdriver Creek on one of the wildest, roughest, and at the same time, most beautiful examples of virgin wilderness in the country, we surveyed, cruised and mapped topographically a section of land that gave us the utmost use of the principles involved. Douglas and white fir, incense cedar and the ever-present western yellow pine vied with one another to form a veteran stand. The topography possessed every variation from gently rolling to an extreme of one hundred percent slope. It seemed that the section corners were lost in a maze of historical data. This seemed the more evident due to the fact that chained distances through four-foot manzanita are not productive of the most accurate results.

After a brief interlude in which reports were rushed to a finish and the last weekly washing taken care of, camp was broken on Lake Britton and, during the second week of August, we started on our tour of the upper coast. The first stop at McCloud brought an extensive study of the sawmill and its subsidiaries. Further on, Mount Shasta City was our host, where we quartered in the attic of the Forest Service headquarters. We received the most intimate contact with the Service here, due to the personal cooperation of DeWitt Nelson, an Ames forestry graduate, who is assistant supervisor of the Shasta Forest.

While in Mount Shasta, we experienced the thrill of climbing the "Queen of the Siskiyous," the mountain after which the city was named. We made brief preparations on the afternoon before, drove four miles by auto and then began a four mile

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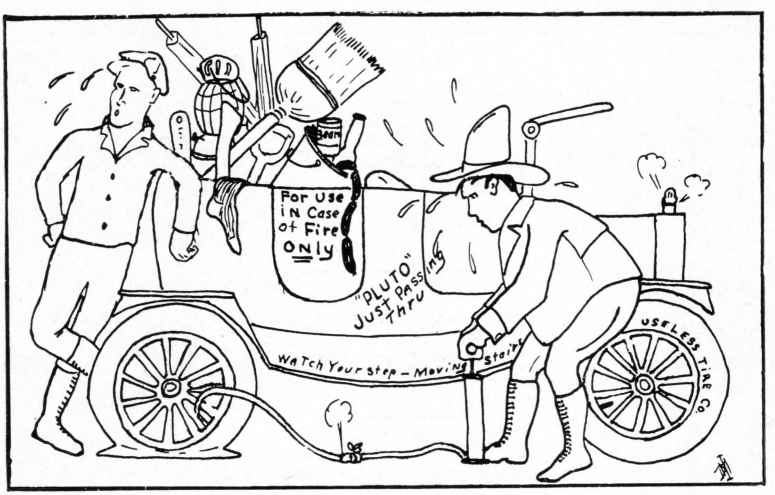
trek up the foothills to reach the timberline lodge before dusk set in. Three o'clock the next morning found us up and, after a hearty breakfast, we set out for the summit of the peak—four miles of real mountain. It is perhaps creditable even to us that we reached the top one hundred percent strong.

Turning our faces toward the coast, we sung down south through the Clear Lake region and up the Redwood Highway to Eureka. There, on a redwood logging operation, we saw the first cable skidding system of the trip, a deflecting line system. The redwood mill at Scotia furnished us with additional information concerning the big trees.

Then on and on up the coast we traveled, with short stops here and there, ultimately finding ourselves in Portland. A brief halt in Oregon City gave us an insight into the paper mill industry, and at Portland, we visited the Forest Service offices in the new post office building. While there the "Skipper" gave us a little surprise test in the way of a farewell party. Then it was handshakes and "so long 'till next fall," and the '32 summer forestry camp was a memory. And a pleasant one in spite of the mosquitoes.



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